

CONFERENCE ABSTRACTS

THE 8TH EAST AFRICAN HEALTH AND SCIENTIFIC CONFERENCE:

East African Community Sustainable Development Goal on Health: Reflection and Path Ahead to 2030

17-19 November 2021



The guest of honour Mr Moses Mbaruku Secretary Administration, Ministry of Health Republic of Kenya lights the torch to symbolize the official opening of the 8th EAHSC



Members of the 8th EAHSC organizing secretariat poses for photo with the guest of honour



Prof. Juma Shaban of the University Burundi delivering main keynote speech of the 8th EAHSC



The East African HEALTH RESEARCH JOURNAL

The basis for better health policy and practice

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KEYNOTE SPEAKER ABSTRACTS

Main theme: East African Community Sustainable Development Goal on Health: Reflection and Path Ahead to 2030

Keynote Speech: Accelerating Attainment of the SDG3: Efficient Ways

Prof Juma Shaban
Director Doctoral School
University of Burundi, Burundi

Extended Abstract

The presentation begins by recalling the formulation of SDG 3 which reads “Ensure healthy lives and promote well-being for all at all ages”, its 13 targets provided in the Annex and 28 indicators used to measure the progress made in achieving these targets. It then discusses the major results achieved and challenges encountered in implementing the SDG 3 targets at the regional and national levels with particular emphasis on the targets related to the conference sub-themes and the symposia.

The presentation then gives some opportunities that could enable EAC States Parties to better contribute to the achievement of SDG 3. Finally, based on all this discussion and taking into account the current and foreseeable negative impact of COVID 19 on health systems, the presentation proposes some strategies that could help accelerate the achievement of SDG 3.

1. Some Achievements and Challenges

Regional Initiatives: The EAC has set up regional structures such as (a) the Disease Prevention and Control Unit that is implementing the East African Public Health Laboratory Networking Project (EAPHLNP) and the East African Integrated Disease Surveillance Network and (b) The “Support to Pandemic Preparedness in the EAC Region” project Through the EAPHLN Project, States Parties have established a network of 40 well- equipped public health laboratories with trained staff and strong diagnostic and surveillance capabilities. The EAPHLN project has also helped to improve preparedness and response to cross-border epidemics and to combat the regional spread of COVID-19.

The entry into force of the EAC Common Market Protocol, which is seen as a major step forward in regional integration, particularly in promoting the free movement of people is contributing to an increased risk of transmission of communicable diseases. There is therefore a need to strengthen regional disease surveillance systems and emergency response capacities across the EAC.

The One Health Approach: The “One Health” concept is built on the fact that there is great potential to protect public health through policies of prevention and control of pathogens in animal populations, at the interface between humans, animals and the environment.

In order to establish and train a strong and urgent One Health workforce, the EAC Secretariat, with the support of the universities of all EAC Partner States and the German Government, has developed a regional, generic and interdisciplinary postgraduate course on “Pandemic Preparedness with a One Health Approach (PPOH)” and is currently using this course to develop capacity in Partner States.

Other institutions are contributing to building the capacity required to promote the One Health approach in the EAC Partner states. These include the One Health Central and Eastern Africa (OHCEA), an international university network; a Makerere University training programme on the One Health Approach based on the experiences of the One Health Workforce Project in Uganda; and One Health Research, Education and Outreach Centre in Africa (OHRECA) of the International Livestock Research Institute. At the national level, Rwanda has recently adopted a national One Health policy.

Maternal and Child mortality: Globally, the maternal mortality rate (MMR) fell by 38% between 2000 and 2017 to reach the ratio of 211 deaths per 100,000 live births. This ratio is 415 in the poorest countries and 542 in sub-Saharan Africa respectively. For sub-Saharan Africa this ratio is still far from the 2030 target of reducing the MMR to less than 70 per 100,000 live births.

The World Health Organization (WHO) and UNFPA have launched five critical targets for 2025 to help countries to provide an effective continuum of care for maternal and newborn health in order to reduce preventable maternal deaths. Sub-Saharan Africa also has the worst ratio of all regions of the world of under-five mortality rate of 79 deaths per 1,000 live births. Thus, sub-Saharan Africa and the EAC face a major challenge in achieving the target of ending preventable deaths of newborns and children under five by 2030.

The SDG 3 targets on reducing maternal and child deaths should be addressed in synergy with the SDG 2 targets on nutrition. Several research studies have shown that there exists a direct correlation between lack of access to sufficient nutritious food and health insecurity including under-nourishment, immune deficiencies, stunting, illnesses and higher child mortality rates. A Nutrition for Growth Summit scheduled for December 2021 in Tokyo will enable countries to review progress made on this issue, in light of the impact of the COVID pandemic on efforts already made, and to make new commitments to achieve SDG 2 by 2030 and therefore to contribute to reducing child mortality.

Non-communicable diseases (NCDs): NCDs, namely cardiovascular diseases, chronic lung diseases, mental health conditions, and diabetes account for approximately 71% of deaths worldwide. In Kenya this percentage stands at 39%.

The risk factors for these diseases are of two types:

- Modifiable behavioral risk factors such as tobacco use, physical inactivity, unhealthy diet and the harmful use of alcohol; and
- Metabolic risk factors that are: raised blood pressure; overweight/obesity; hyperglycemia (high blood glucose levels); and hyperlipidemia (high levels of fat in the blood).

The Republic of Kenya has just adopted a National Strategic Plan for the Prevention and control of non-communicable diseases for the period 2021/22 -2025/26.

2. Opportunities

The rapid development of information and communication technologies (ICTs), including mobile phones, e-banking, e-health and other technologies, opens up new opportunities for improving health services. There is a need to assess the potential of these technologies and to invest appropriately in them in order to use them effectively in the SDG 3 implementation process.

The implementation of SDGs requires the availability of a critical mass of human resources with the required skills to carry out the various activities foreseen in the policies, strategies and action plans put in place at national and regional levels. As in the case of the One Health approach, universities which have the highest concentration of expertise in the Partner States, should be called upon and supported to contribute to these capacity building programmes.

The implementation of SDG3 also requires the existence of effective doctoral training programmes that should help to create the new knowledge needed to support some of the SDG 3 activities. In this perspective, the operating model of the University of Burundi's doctoral school could open up opportunities for academic cooperation necessary to train researchers in the priority areas of SDG3.

The University of Burundi's doctoral school operates according to a new and unique model in Africa. This model is based on co-supervision of theses involving necessarily supervisors from inside and outside Burundi, mobility of students and supervisors in Africa and beyond in order to use world-class research facilities and increased use of e-learning and video-conferencing platforms in order to involve the world's best experts in teaching and supervising PhD students and to give to PhD students adequate access to the best virtual libraries and open educational resources. The University of Burundi's doctoral school offers PhD training in all areas of scholarship. In addition, it implements four regional programmes relevant to the implementation of SDG 3 in the EAC. These programmes are:

- a. PhD in Nutrition and Health with two options: Nutrition and Public Health and Clinical Nutrition;
- b. PhD in Food Science and Nutrition with two options: Food Technology and Quality and Food security and climate change;
- c. Interdisciplinary Research Programme on Public Health currently focusing on malaria; and
- d. Postgraduate Programme on Mental Health.

3. Proposed Ways for Effective Implementation of the SDG3

Taking into account the current and foreseeable negative impact of COVID-19 on health systems and SDG3 implementation strategies in the EAC, and the achievements and challenges encountered in the implementation of SDG3, the EAC Secretariat and partner states may wish to consider the following recommendations to help accelerate the achievement of the expected results by 2030;

- a. Develop policies, strategic plans and action plans required to achieve the various targets;
- b. Put in place programmes for training of the human resources required to effectively contribute to the implementation of SDG3 related activities;
- c. Promote regional doctoral training programmes in priority areas of the SDG3 to enable countries to have adequate research capacity to create the new knowledge required to facilitate the implementation of SDG3 programmes.

Annex. SDG3: Targets

1. “By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births”
2. “By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under 5 mortalities to at least as low as 25 per 1,000 live births.”
3. “By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.”
4. “By 2030, reduce by one-third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being
5. “Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol”.
6. “By 2020, halve (50% less) the number of global deaths and injuries from road traffic accidents.”
7. “By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programs.”
8. “Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all”.
9. “By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.”
10. 3.10 “Strengthen the implementation of the World Health Organization Framework
11. Convention on Tobacco Control in all countries, as appropriate.”
12. “Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all.”
13. Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in the least developed countries and small island developing states”
14. “Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks.”

Subtheme 2: Infectious Diseases

Title: Paradigm Shift for Effective Control and Prevention of Infectious Diseases

Prof Eligius Francis Lyamuya, Muhimbili University of Health and Allied Sciences, Tanzania

Infectious diseases continue to cause calamities in the world today despite the great advances in their prevention and control. They are responsible for significant morbidity and mortality globally especially in low and lower middle-income countries. The modern means of transportation and increased human interaction across countries greatly facilitate spread of infectious disease pathogens from one part of the world to another. Indeed, it is easier today for the transmission of infectious disease agents to reach pandemic proportions than it was ever before in human history.

Since the last two decades, the World Health Organization advocated for the establishment and implementation of national programmes aimed at setting up or strengthening ongoing control of prevalent diseases, reduce transmission, ill-health and deaths, reduce their occurrence to a level where they are no longer of public health importance and where possible to their eradication. The main prevention and control strategies pursued are: Immunization; Mass drug distribution; Food safety; Safe water and sanitation; Injection safety and sterilization; Blood safety and Vector control. These strategies have led to eradication of smallpox, near eradication of polio and significant reduction of prevalence and incidence of common childhood infectious diseases like diphtheria, pertussis, tetanus, and measles. They have also contributed to the reduction of the burden of HIV/AIDS, tuberculosis and malaria. However, changes in the human host, agent, or environment that continue to occur have influenced the epidemiology of infectious diseases over the years to the extent that there is an inevitable need of changing/modifying their management, control and prevention approaches in order to achieve the desired effectiveness.

This keynote presentation aims to promote the drive for paradigm shift in the development and implementation of priority strategies for control and prevention of infectious diseases that are prevalent in the East African Region. While the focus will be on HIV/AIDS, Tuberculosis and malaria, the presentation will also underscore the need for the shift to apply to all emerging and re-emerging infectious disease outbreaks.

Subtheme 3: Non-communicable diseases, mental health and environmental risks, substance abuse including narcotic drug abuse and harmful use of alcohol, tobacco, global deaths and injuries from road traffic accidents.

Title: Promoting mental health care services in Low-and Middle-Income Countries: Rwanda's experience

Dr Yvonne Kayiteshonga, Rwanda Biomedical Centre, Rwanda

Several systematic reviews and empirical evidence regarding the burden of diseases have demonstrated that mental health problems account for about 10% of the total burden of diseases in Low-and Middle-Income Countries (LMICs). Despite being globally recognized as an important public health issue, mental health is still less prioritized as a disease burden in many LMICs. The proportion of people with mental illness who receive evidence-based treatments is very low; mental health resources are scarce and investments in mental health are also very low in many countries.

With reference to the recent Rwanda Mental Health Survey and other available data, the presentation will share updates about the magnitude of mental problems and factors contributing to poor mental health in Rwanda. The presentation will also discuss the provision of mental health services in Rwanda, policies, structure and interventions developed to prevent mental health problems and improve access to care. Rwanda integrated mental health into primary health care and currently all districts' hospitals and majority of health centers (82%) have a mental health unit and are staffed with trained mental health providers.

Not only that, we will also highlight that while mental health care delivery improved, Rwanda has developed a 5-year strategic plan 2020-2024 to have a better uptake of mental health services and consider emerging challenges, including the Impact of COVID-19 on mental health.

Sub-theme 4: Universal Health Coverage

Title: Can African governments afford to pay for universal health coverage?

Prof Osondu Ogbuaji, Global Health Impact, Nigeria

African countries signed on to the sustainable development goal (SDG) target 3.8 which aims to "Achieve universal health coverage (UHC), including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all" by 2030. This goal aligns with the Africa Agenda 2063 goal to

ensure its citizens are healthy and well-nourished. With less than 10 years remaining to achieve the UHC target, progress across the continent has been varied. While some countries such as Ghana, Ethiopia, Morocco, and Rwanda are showing measurable progress as measured by the UHC service index, some have stalled or are facing significant challenges. On average, total health spending has increased over the past two decades across the continent, but this increase was driven by higher out-of-pocket (OOP) payments in many countries.

As a result, every year, over 11 million Africans become poor as a result of OOP payments and over 35 million Africans experience catastrophic health expenses. Experts now agree that without significant increases in domestic health spending by African governments, achievement of UHC on the continent will be difficult or impossible. Can African governments rise to this challenge in the face of significant economic challenges? Experiences from within and outside the continent suggest that although economic concerns are important, they are not sufficient in and of themselves to guarantee progress towards UHC. Are we missing an opportunity for collective action? Are we trying to answer what might inherently be a political question by making health and economic arguments?

Subtheme 5: COVID-19 pandemic

Title: Preparing for the Next pandemic: Lessons from COVID-19 Testing

Prof Matilu Mwau, Kenya Medical Research Institute, Kenya

The COVID-19 pandemic wasn't the first to devastate the world and it won't be the last. The next big surprise for humans is likely to be a microbial agent. The risk is high, and is driven by the combined effects of spark risk and spread risk. Some geographic regions with high spark risk, including Central and West Africa, lag behind the rest of the globe in pandemic preparedness. What lessons have we learnt from COVID 19 testing that can be applied together with other lessons to increase our preparedness for the next pandemic? Firstly, that we must address pernicious Strategic, Human Resources, Infrastructure and Procurement problems. That we must restore institutional trust so that the public can adhere to directives and trust our results. We have to be proactive about early warning systems, recalibrate resources to match threats, let the evidence drive action, build mass casualty surge capacity, build vaccines production capacity and logistics networks, and strengthen research capacity. This is the right time to future-proof laboratory capacity.

CONFERENCE ABSTRACTS

Subtheme 1: Reproductive, maternal, newborn, child, and adolescent health

1. Adverse neonatal outcomes at the maternity ward in a County Referral Hospital, Kenya,

Corresponding Author: Gabriel K. Nyang'au

Co-authors: Rachel Inginia, Kevin Lomuria, Maryanne Gachari,

Introduction: Adverse neonatal outcomes such as prematurity, poor apgar scores and asphyxia are major contributors to morbidity and mortality in neonates. Characterization of these determinants of neonatal morbidity and mortality has not been done at Kitale County Referral Hospital and we sought to bridge this gap. We characterized the adverse neonatal outcomes at Kitale County Referral Hospital between April and May 2021.

Methods: We conducted a cross-sectional, retrospective descriptive study design by review of the post-natal maternity registers at the Kitale County Referral Hospital. The case definition was any entry of a neonate born between April and May 2021. We collected information on sex, gestation at birth, birth weight and birth outcomes using a Microsoft Excel data collection tool. Descriptive analysis was done using measures of central tendency for continuous variables and proportions for categorical data.

Results: We collected data on 500 neonates. The males were 249(50.4%) and the mean birth weight was 3.1 kg (SD±0.54). Stillbirths were 16(3.2%) with fresh and macerated stillbirths being 5(31.3%) and 11(68.7%) respectively. Neonates with low birth weight (<2.5kg) were 44(8.98%) and those born premature (at <37 weeks) were 104(21.1%). Majority of the neonates had APGAR scores of >7 (92.9%, 94.7% and 95.5% at minute 1, 5 and 10 respectively). In the data quality audit, all the variables had accuracy and completeness of more than 80%.

Conclusion: A third of stillbirths occurred during labour or delivery while almost a third of all neonates were born premature at < 37 weeks and at least a tenth of them had low birth weight. We recommend sensitization training of healthcare workers in maternity and newborn care units, fetal growth monitoring and neonatal size evaluation, education on adequate nutrition and daily iron and folic acid supplementation during antenatal care to help reduce stillbirths and prevent low birth weight.

Key words: Neonatal mortality, low birth weight, antenatal care, preterm.

2. An Investigation on HIV Transmission to Infants in Relation to the Mode of Infant Feeding and Maternal Immunity in Central Kenya

Corresponding Author: Catherine Thiguku Njagi

Co-authors: Ng'ang'a Murima

Background: Globally, about three million children are living with HIV. More than 90% of these children were infected through mother to child transmission (MTCT).

Aim: To investigate HIV transmission to infants in relation to the mode of infant feeding, maternal immunity and utilization of highly active antiretroviral therapy (HAART)

Methods: The study was conducted in Kerugoya Hospital in Central Kenya. Retrospective analysis of records of HIV-positive mothers was done. Further, a cohort of HIV-positive mothers who had given birth to live infants were followed up for a period of up to 18 months. Infants were tested for HIV six weeks, 9th and 18th months after birth.

Results: A total of 303 mother-child dyads were enrolled in the research. The ages of mothers ranged from 15 to 52 years (mean standard deviation 32±5.6 years). The proportions of the mothers who had practiced exclusive breastfeeding (EBF) and exclusive replacement feeding (ERF) were, respectively, 77.9% and 22.1%. At 6-weeks six children tested positive for HIV (3.3% (95% confidence interval (CI) 1.8%-6.0%). At the completion of the study, fourteen children were HIV-positive (4.6% (95%CI 2.8%-7.6%). Higher rates of MTCT, albeit insignificant, were observed in mothers who had given birth by SVD when compared with their counterparts who had delivered by caesarean section (14,5.2% against 0,0.0% respectively, p=0.159). EBF reduced the risk of MTCT by about 10% when compared to ERF (odds ratio (OR) 0.94(95% CI 0.91-0.97, p=0.045). Switching from breastfeeding to replacement feeding was not significantly associated with MTCT (p= 0.998). MTCT rate was 8.3% in children who were switched to replacement feeding before 6 months of age while there was zero incidence of MTCT in the opposing group (p=0.414). Mixed mode of feeding was associated with increased likelihood of MTCT (OR 19.43 (95%CI 3.87-97.56), p=0.002). Although not significant, MTCT rate was higher in children born of mothers who had low immunity (CD4 count<200 cells/μL) at the onset of the study compared to their higher immunity counterparts (9.0% and 3.7%,

$p=0.085$). On the converse mothers who had low immunity in the end line phase of the study had approximately 4-fold increment in likelihood of transmitting HIV to their children (OR 4.42 (95%CI 1.28-15.25), $p=0.011$). Children who took the prescribed ARV were at a reduced risk of acquiring HIV from the mother (OR 0.003(95%CI 0.00-0.02), $p<0.001$).

Conclusion: The results affirm the benefits of EBF and HAART in lowering MTCT of HIV.

3. Assessment of Health System Factors influencing Satisfaction with Postnatal Care Services Among Women Who Delivered in Embu Hospital, Embu County, Kenya

Corresponding Author: Joyce Wambere Wachira

Co-authors: George Otieno, Harun Kimani, Murima Ng'ang'a

The postnatal period is a vulnerable time because most maternal and neonatal deaths occur during this period. Patient satisfaction is a means of secondary prevention of maternal mortality, since satisfied women may be more likely to adhere to health providers recommendations. The purpose of the current descriptive cross-sectional study was to establish the health system factors influencing satisfaction with the postnatal services in Embu Hospital, Kenya. The study population were postpartum women aged 15-49 years who had delivered in this hospital. A total of 205 participants were enrolled in the study with the majority being married (75.6%), Christians (91.7%) and less than 35 years of age (71.7%). Those who had attained primary and secondary school education were 28.8% and 43.4% respectively. Analysis of the satisfaction data revealed that, 112 respondents (54.5%) were not satisfied with orientation to health care team members in the postnatal unit. Furthermore, 128 respondents (62.4%) were not satisfied with information about ward routines. Majority were satisfied with communication whereby the nurses spoke to them in their local language (194, 94.6%). Findings from this study also showed that the following health system variables did not have a significant relationship with women's satisfaction with postnatal care; orientation ($p=0.879$), information ($p=0.684$), communication ($p=0.092$). The only health system factor that influenced postnatal women's satisfaction was comfort and care ($p=0.008$). The findings highlight a substantial proportion of women who were not satisfied with postnatal care services. There is thus a need to come up with strategies aimed at addressing that gap to enhance utilization of the services.

4. Biomarkers of late post-discharge mortality among children treated for complicated severe malnutrition

Corresponding Author: Cecillia Wechessa

Co-authors: James Njunge, David Mburu, Bonface Gichuki, Moses Ngari, James Berkley

Background: Despite adherence to the WHO guidelines, children with complicated severe malnutrition (cSM) remain at a high risk of mortality due to infections. Systemic inflammation has been associated with early post-discharge mortality (<60 days) when children are judged to be clinically well. However, it is not known whether systemic inflammation persists and is associated with late post-discharge mortality (> 60 days). This study aimed to investigate possible biological processes associated with late post-discharge mortality that could be amenable for intervention.

Methodology: This was a case control study nested within a multi-center, randomized controlled trial that investigated the efficacy of daily co-trimoxazole prophylaxis for 6 months among children treated for complicated severe malnutrition and followed up for 12 months. Participants were children aged 2-59 months, HIV uninfected and treated for cSM. Cases ($n=64$) were children who died between 2-6 months following discharge from hospital while controls were children who survived the one-year follow-up period during the trial with no readmission to hospital. Targeted markers of systemic inflammation (cytokines, chemokines $n=29$) and endothelial dysfunction (thrombomodulin, D-dimer, angiopoietin and ADAMTS13) approaches were used to determine associations with late post-discharge mortality.

Results: Cases had lower median mid-upper arm circumference than controls ($p < 0.01$). Inflammatory cytokine; interleukin 15 (IL15) and endothelial markers angiopoietin and ADAMTS13 were associated with late post discharge mortality in multivariate analysis ($p < 0.05$). After adjusting for confounders, marker of endothelial dysfunction ADAMTS13 and inflammatory cytokines IL15 and interferon alpha ($IFN\alpha-2$) were associated with late post discharge mortality ($p < 0.05$).

Conclusions: Late post-discharge mortality is associated with endothelial dysfunction driven by persisting systemic inflammation probably due to acquired infections in the community. These results call for reinforcement on continuous monitoring of children with cSM to ensure early detection of clinical signs of infections following hospital discharge. Further planned work will use untargeted liquid chromatography tandem mass spectrometry proteomics to investigate further on mechanisms underlying late post-discharge mortality.

5. Biomarkers of severe acute infections in hospitalized children

Corresponding Author: Jacqueline Waeni

Co-authors: Daniel O'Connor, James Nokes, Charles Sande

Affiliation: KEMRI-Wellcome Trust Research Programme, CGMRC, Kilifi, University of Oxford, University of Warwick

Background: Sepsis is a heterogeneous syndrome caused by a dysregulated host response to infection. It is accountable for substantial morbidity and mortality. Different pathogens cause infections that manifest with sepsis-like symptoms thus limiting symptomatic clinical diagnosis. Determining the etiology of sepsis remains a global challenge. This complicates care decisions, leading to increased antimicrobial resistance and mortality. Preventing death and long-term morbidity due to infectious diseases requires better diagnostics. Understanding the molecular processes that underlie different etiologies would enable initiation of appropriate and timely treatment. We aimed to characterize the host response in plasma of children under 5 years admitted at the Kilifi County Hospital with severe acute infections.

Methods: Admission levels of plasma proteins were determined using untargeted liquid chromatography tandem mass spectrometry (LC-MS/MS). Protein profiles of children with bacterial infections (N = 63) were compared with those of children who had viral infections (N=75). Healthy children (N=20) were used as controls. Using linear models, we assessed the relationship between baseline plasma proteins and infection.

Results: Bioinformatic analysis of differentially expressed proteins showed elevation acute phase proteins such as C-reactive protein in children with bacterial infections. In addition, angiotensinogen, lipopolysaccharide binding protein and Serpin Family A Member 1 were associated with bacterial infections while Apolipoprotein A-2, and paraoxonase-1 were associated with viral infections. Acute phase responses and neutrophil degranulation were enriched in bacterial infections while platelet degranulation was negatively associated with bacterial infections.

Conclusions: These results show the changes plasma protein levels and biological processes during bacterial and viral sepsis that can be leveraged to design diagnostic biomarkers and future interventions of sepsis.

6. Changes in fertility preferences and its impact on Contraceptive use: An analysis of a national representative longitudinal survey in Kenya

Corresponding Author: Mary Thiongo

Co-authors: Michael Waithaka, Elizabeth Gummerson, Philip Anglewicz, Peter Gichangi

Background: Reproductive choice is one of the most fundamental rights of a couple, and therefore couples should be free to reproduce as well as use contraceptives during their reproductive period. Women's fertility desire is one of the most widely used measure for assessing fertility preferences. Previous studies have shown that women's fertility intentions can be a powerful predictor of women's contraceptive behavior and fertility outcomes. In this study we explore the relationship between women's fertility desires and their contraceptive behavior through causal inference.

Methods: This study utilizes data from the Performance Monitoring for Action (PMA) nationally representative survey in Kenya. PMA Kenya collects nationally and county-level representative data on knowledge, practice, and coverage of family planning services in 308 enumeration areas selected using a multi-stage stratified cluster design with urban-rural strata. From 11 counties, eligible females aged 15-49 interviewed in November-December 2019 were re-interviewed between November - December 2020. All participants gave consent/assent for participation and re-interviews.

Results: Of the 7,079 eligible respondents who were contacted, 99.1% completed the follow-up survey. In the 1-year follow-up period, contraceptive use increased by 7.3% and by different magnitudes across the 11 counties. At baseline and follow-up, women who desired no more children reported a higher use of modern contraception than those who desired more children over time ([Baseline mCPR: Wants now/within 1 year – 21.5%, Wants in +1 years – 37.5%, prefer no/no more – 54.9%]; [Follow-up mCPR: Wants now/within 1 year – 28.7%, Wants in +1 years – 44.3%, prefer no/no more – 60.6%]). Women from all the 11 counties who desired no more children at baseline had higher odds of modern contraceptive use than that of women who desired more children. The tempo of change in use of modern contraception over time among women with different fertility desires differed across the 11 counties.

Conclusion: Although there were county specific differences observed, women's fertility intentions have an impact on their use of modern contraceptives over the 1-year period between baseline and follow-up.

7. Crop Intensification Program, Feeding Practices and Nutrition Status of Children under Five Years in Musanze District, Rwanda

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Background: The current high global population growth increases inevitably the demand for food. For countries to be able to feed the population required to find a way to increase food crops production on the land units. In response, the effort has been

made to improve agricultural technology through agriculture intensification to increase production and improve food security. Rwanda has also made the same effort through the implementation of the Crop Intensification Program (CIP) to increasing crop food production and improve food security. Although evidence showed that CIP is contributing to increased crop production, there is limited evidence on the extent to which CIP is contributing to human nutrition within households.

Methods: A cross-section study was conducted in Nyange sector, Musanze district, Northern Rwanda. A sample of 86 households participating in CIP were selected using purposive and simple random sampling methods. A subsequent sample of 84 children aged 6-59 months were selected for anthropometric measurement and nutritional status assessment. Data analysis was done using SPSS and WHO Anthro for anthropometric data and computing Z scores for further analysis of the nutritional status.

Results: The study findings revealed CIP increased food crops production and access to food in the majority of households (75.6%). The overall perception towards the impact of CIP was positive in general (77.9%), and included improved access to food and income, improved access to fertilizers and seed, and protection of crops in the field. Access to food was found improved within the majority of households participating in CIP, 63.56% of households had not difficulties to access the food. Of the 84 included children, the special food was only prepared for only 14 (16.7%) children on the day before the assessment, and the main reason for not doing it was due to lack of time 41/70 (58.6%). Undernutrition especially stunting among 6 to 59 months children were found to be high (33.3%). None-timely delivery of improved seeds and fertilizer, and non-autonomous decision to participate in the program were reported by participants as challenges to CIP.

Conclusion: The CIP improved positively food crops production and access to food in involved households. There still needs to sensitize and support farmers to participate in CIP. In addition, the government in collaboration with providers of fertilizer and improved seeds should work together and supply to farmers on time. Children under five years old need attention for proper feeding to maintain their good nutritional status.

8. Cultural competence of health care workers on Maternal Health Care Service Utilization among Mothers of Mount Elgon Constituency Bungoma, Kenya

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Institution: Bungoma County

Background: Worldwide, a woman dies every minute due to pregnancy/childbirth i.e., 529000 women in a year. For every mother dying, around 30 more women suffer injury, infection, or disease, which are approximately 10 million women each year. (WHO, 2011).

Objective: To determine the cultural competence of health care workers on maternal health care service utilization among mothers of Mt. Elgon Constituency in Bungoma County.

Method: A descriptive-analytical cross-sectional study design was adopted using mixed methods for data collection. Randomly 510 mothers and 20 staff were selected.

Results: Unemployment (OR: 0.6; 95% CI: 0.4 – 0.9; p = 0.02); lack of mobile clinic (OR: 0.7; 95% CI: 0.4 – 1.0; p = 0.06); use of interpreter (OR: 0.2; 95% CI: 0.01 – 0.81; p = 0.02); service provided in public facilities (OR: 0.5; 95% CI: 0.3 – 0.8; p = 0.004); being too busy (OR: 0.5; 95% CI: 0.3 – 0.9; p = 0.02); consulting health care workers (OR: 0.5; 95% CI: 0.2 – 0.9; p = 0.03); not consulting elders (OR: 0.7; 95% CI: 0.4 – 1.0; p = 0.08) and culturally incompetent (100%) were significantly associated with utilization of maternal health services. Maternal health care service utilization in Mt. Elgon Sub-County women employed (OR: 2.8; 95% CI: 1.1 – 7.3; p=0.03) and cultural incompetence (100%).

Conclusion: The study data shows cultural incompetence (100%) was significantly associated with the utilization of maternal health services.

9. Description of Women Attending First Antenatal Care Visits at Saboti Sub County Hospital from March to December 2020

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Introduction: Antenatal care (ANC) is a key strategy to improve maternal and infant health. The World Health Organization (W.H.O) recommends a 'Focused' ANC, consisting of (at least) four visits to a health facility during an uncomplicated pregnancy to be initiated within the first trimester of gestation. In sub-Saharan Africa women initiate ANC after the first trimester. The study was to describe socio demographics, assess teenage pregnancy, assess HIV and Syphilis positivity, characterize 1st visits by trimester and gravidity and conduct Data Quality Audit (DQA)

Methods: The Study area was Saboti Sub County Hospital and all women who attended first ANC March – December 2020 (n=509) was included. This was a retrospective data review from ANC Register (MOH 405). The Data abstracted from MOH 405 and descriptive data analysis and DQA done on Excel.

Results: The mean age of women was 25 with SD of 7 years and 23.4% were teenagers. Women of 20-24 age group were 34% and 67.4% started ANC in their 2nd trimester. Married women and 1st time mothers were 78.4% and 37.7% respectively with HIV and Syphilis positivity of 0.6% and 0.4% respectively and 4% of women received ITNs

Discussion: Intended pregnancies is directly proportional to seeking ANC and 12.4% initiating ANC Care at 1st trimester was lower than western region of 20% (KDHS 2014). Syphilis and HIV screening is key in prevention of poor pregnancy outcomes. ITNs had been out of stock and the 23.4% of teenage pregnant women was higher than, Lamu, Garissa and Wajir at 10% but lower than Narok – 40%.

Conclusion: Married women and 1st time mothers were majority in ANC Visits and only 12.4% initiated ANC Care at 1st Trimester as recommended by WHO. 50% (n=2) with VDRL Positive Result had two Lost pregnancies (Parity 2+2) and 66.7% (n=3) of Newly HIV Positive women had Previous Live births. Recommendations; Community Directed interventions, Strengthen PMTCT, aPNS and Laboratory Testing and Maintain consistent supply of ITNs

Keywords: Antenatal care, women attending visits, Saboti Sub County hospital,

10. Desired Birth Spacing in Pregnant Women. Cases of three health facilities: one rural and two urban in Burundi.

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Objective: The objective of this study was to evaluate the desired birth space for women when they are pregnant in order to encourage them to reflect and consider planning their next pregnancy.

Patients and Methods: This prospective study took place from May 2018 to May 2019 in three hospitals: Kibuye Hope Hospital (rural), Centre Hospitalo Universitaire de Kamenge and Van Norman Clinic (both urban). All pregnant women who agreed to respond to questions regarding birth spacing were included except those who have chosen an irreversible contraceptive method.

Results: 438 women (67.69%) of 647 accepted postpartum family planning. DMPA was the first method chosen (41.6%) followed by implant (38.5%). Most primiparous women wanted a birth spacing interval of 2 years (64.7%). Most pauciparous women wanted either 5+ years (43.2%) (P= 0.0002). The age of the last child was ≤ 2 years at 33.91% (P= 0.000). The level of education is not significantly associated with the presumed period for the next pregnancy (0.195). Women wanting to use the DMPA injection over a period of 2-3 years were the most represented (45.7%). Women wanting to use the Jadelle implant as a contraceptive method over a period ranging from 4-5 years were the most represented (43.5%) followed by those wanting to use it over a period ranging from 5 years (33.8%).

Conclusion: The more parity increases, the more women want to space their births, regardless of their level of education. DMPA and the jadelle implant were the main methods used for long-term contraception. Although the majority of women wanted inter-reproductive space of 4 years and over, the age of the last child was ≤ 2 years at 33.91%. This shows that in some cases their pregnancy was unwanted.

Key words: Birth spacing interval, Pregnant Women

11. Epidemiological, Clinical and Echographic Profile of Deep Venous Thromboses in Pregnant Women at Teaching Hospital Center of Kamenge Chu in Bujumbura

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Introduction: Venous thrombosis of the lower limbs are pathologies more and more frequently observed during pregnancy in Burundi. Ultrasound is one of the key ways in their diagnosis. The overall aim of this study is to describe the epidemiological, clinical and ultrasound profile of deep vein thrombosis in pregnant women at the Teaching Hospital Center of Kamenge.

Methods: We conducted a retrospective descriptive study, from January 2018 to December 2020 including all pregnant women hospitalized in the gynecology-obstetrics department for deep vein thrombosis. The analysis focused on different including medical history, lifestyle, clinical signs associated with deep vein thrombosis and ultrasound results.

Results: Out of 6502 patients admitted to hospital in the gynecology and obstetrics department, 20 patients were admitted for venous thrombosis during pregnancy. Their average age was 30.4 years and 7 (35%) of them were primigravida. Four of the patients (10%) were on combined estrogen-progestogen contraception. The main reason for performing Doppler ultrasound was lower limb pain noted in all patients. This pain was associated with edema of the affected limb in 17 patients (85%). Venous thrombosis was discovered in the first trimester of pregnancy in 11 patients (55%); in the second semester in 7 patients (35%) and in the third trimester in 2 patients (10%). The left lower limb was affected in 16 (80%) patients against 4 (20%) for

the right lower limb. The iliofemoral stage was involved in 13 cases (65%), and the femoro-popliteal stage in 7 women (35%). No complication; notably pulmonary embolism, was not noted during our study period.

Conclusion: Deep vein thrombosis is observed in pregnant women in their 30s years. Doppler ultrasound is the test of choice for making a diagnosis. Ultrasound of the left iliofemoral stage is the preferred location for this thrombosis.

Keywords: deep vein thrombosis, lower limb, pregnant woman, doppler ultrasound

12. Factors Associated with Health Seeking Behavior for Reproductive Tract Infections among Young Street Females in Eldoret, Kenya

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Reproductive tract infections (RTIs), among young women is a public health concern, especially in developing countries like Kenya. When a reproductive tract infection occurs, urgent treatment should be done to avoid short and long term consequences. However, few studies have evaluated factors associated with RTIs and healthcare seeking behaviors especially, among young street women in low and middle-income countries. This study aimed at determining the factors associated with healthcare seeking behavior for RTI infections among young street females in Eldoret town in Kenya. Descriptive cross-sectional study design was used. The study participants were young street females aged between 10-24 years. The independent variables were age, education, occupation, marital status, and healthcare associated factors such as distance to the facility, and health care perspectives on reproductive health were assessed. Informed consent was obtained from participants while assent was obtained from guardians for minors and persons in charge of street families. A total of 77 young street females were enrolled. Those aged ≤ 15 years were 10 (13%) while those aged ≥ 20 years were 48 (62.3%). The study established that participants aged between 16 to 19 years were less likely to report having had an RTI compared to those aged between 20 to 24 years (95% CI; 0.216 (0.070-0.671), $p=0.006$). Majority had heard of RTI (62, 80.5%). Out of the fifty respondents (65%) who reported having ever experienced RTI in their lifetime, 36 (72%) sought treatment for the illness with 46 respondents (94%) seeking treatment after two days post-onset of symptoms. Additionally, the main first points of seeking treatment were pharmacies (21, 43%) and health facilities (25, 51%). The study findings show there's a high burden of RTIs among young street females in Eldoret.

13. Factors Associated with Maternal Deaths in Morogoro Region, Tanzania

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Background: Maternal mortality rates have remained persistently high in Sub-Saharan Africa and Southern Asia accounting for approximately 86% of global maternal deaths. In Tanzania Maternal Mortality Ratio (MMR) is estimated at 556 per 100 000 which is translated to 36 women dying everyday due causes related to pregnancy and child birth. Information on factors associated with maternal deaths at different levels of care from primary to tertiary healthcare settings in the country is scarce. The study aimed to determine factors associated with maternal death in Morogoro region, Tanzania.

Methods: A case control study was conducted in Morogoro region utilizing data from the Health Information Management System (HMIS) registers and Maternal Death Review (MPDSR) forms found in the facilities. Cases and controls were selected from women who delivered in the health care facilities from January 2018 to December 2019. Multiple Logistic regression analysis was used to determine the independent factors associated with maternal deaths.

Results: A total of 207 Cases and 414 controls were recruited into the study. Of these 157 (75.85%) died at hospital level and Morogoro municipal council reported most (35.75%) of maternal deaths. Significant factors associated with maternal death were; age less than 20 years [AOR = 2.61, 95% CI (1.38 - 4.93)], complication on admission [(AOR 5.07, CI (3.14- 8.20)], and having received less than six out of nine basic ANC services [AOR 2.85, CI (1.86 -4.01)]. Factors reported to contributing to maternal deaths in the MPDSR forms, 86(42.61%) were healthcare service factors and 116(57.39%) were community factors. Postpartum hemorrhage 56(27.05%) was the leading direct cause of maternal death reported followed by eclampsia 35(16.91%).

Conclusion: Direct causes of maternal deaths are still the main causes of maternal deaths in the region. Improved coverage and quality of basic ANC services will facilitate prevention and early detection of complications.

14. Fertility Preferences, contraceptives use and pregnancy experience among married women: Evidence from a national representative panel study in Kenya

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Background: The fertility preferences of women, as measured by their desired family size and intention to limit or delay child-bearing, have been the subject of continuous research in the last few decades for their predictive validity of subsequent

childbearing. Studies have shown that women have inconsistent fertility desires and contraceptive use. This increases their risk of unintended pregnancies. In this study, we examine the role of fertility desires and contraceptives use and pregnancy experience over a 1-year follow-up period.

Methods: This study utilizes data from the Performance Monitoring for Action (PMA) nationally representative survey in Kenya. PMA data is collected from 308 enumeration areas selected using a multi-stage stratified cluster design with urban-rural strata. Data used was collected in November-December 2019 and women were re-interviewed in November-December 2020. All participants gave consent/assent for interviews and follow up.

Results: Of the 7,079 eligible respondents who were contacted, 99.1% completed the follow-up survey. About 59.4% of the respondents were married. In the 1-year follow-up period, 19.8% of married women experienced a pregnancy or birth. About 18.5% of women using a modern FP method experienced a pregnancy/birth. The percentage with a pregnancy/birth was higher among women not using at baseline (35.0%) compared to the follow-up (22.6%). Pregnancy was less common among users of long-acting and permanent methods (12.2%). Women not wanting any (more) children were the least likely to experience a pregnancy in the 1-year follow-up period compared to those who wanted to have (12.0% vs 27.7% respectively). No differences were observed between those who wanted to delay for 12 or more months and those who wanted soon ($p=0.33$). Multivariate findings demonstrate distinctions in pregnancy experience by baseline modern contraceptive use (users vs non-users; aOR = 0.20 (95% CI: 0.16, 0.24)) as well as baseline fertility desires (Wants now/within 1 year vs Wants in +1 years; aOR = 2.15 (95% CI: 1.44, 3.21)).

Conclusions: Fertility desires are not stable and thus health service providers need to consider the fluidity of fertility desires in counselling clients.

15. Fertility trends by HIV status from 1994-2018: Evidence from health and demographic surveillance system in Tanzanian rural District

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Methods: From 1994 to 2018, births and population denominators from the HDSS population were used to obtain Age-Specific-Fertility Rates, and the Total Fertility Rate (TFR), which were compared across time periods (1994 to 2018). HIV status was extracted from eight rounds of Epidemiological Serological surveillance (1994–2017). Independent risk factors for fertility changes were examined using the Cox proportional hazard models.

Results: There were 24,662 births from 36,814 women who contributed a total of 145,452.5 Person-Years of follow-up. TFR declined from 6.5 births per woman in 1994-1998 to 6.4 births per woman in 1999 - 2003, from 5.9 births per woman in 2004 - 2008 to 5.5 births per woman in 2009 - 2013 and finally to 4.3 births per woman in 2014 - 2018. TFR was low in women residing in peri-urban (age-adjusted RR=0.727; 95% CI 0.632 – 0.837; $p<0.0001$), and in women with higher educational attainment (age-adjusted RR=0.704; 95% CI 0.498 – 0.995; $p=0.047$). The number of births per woman was 40% lower in women living with HIV compared to HIV-uninfected women (4.41 vs. 6.72) although this difference narrowed over time.

Conclusions: The findings suggest an accelerated decline in population fertility in rural Tanzania. Women's education and peri-urban settlement contributed to lower fertility. Fertility remained lower in women living with HIV compared to HIV-uninfected women but the difference continued to narrow over time.

Keywords: Fertility, HIV, Art, and Health and Demographic Surveillance System,

16. Health-Related Quality of Life of Children with Gastroesophageal Reflux Disease after Nissen Fundoplication and Gastrostomy Tube Insertion

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Co-authors: Dr Stanley Mugambi, Prof Pauline Samia, Dr Waceke Nganga

Background: Gastroesophageal reflux disease (GERD) negatively impacts the health-related quality of life (HRQoL). Nissen fundoplication is done when medical treatment fails. The goal of therapy is to eliminate symptoms and improve quality of life.

Justification: HRQoL is a key indicator that we can use to evaluate the impact of our interventions so that we can make evidence-based decisions and advice our patients appropriately based on the outcomes of these interventions.

Objectives: The primary objective was to assess the HRQoL of children with GERD after Nissen fundoplication alone or Nissen fundoplication and gastrostomy tube insertion.

Methods: *Design-* Observational retrospective cohort study. *Setting-* Aga Khan University Hospital, Nairobi (AKUHN) and Gertrude's Children's Hospital (GCH). *Study population-* Children under 18 years with GERD who had Nissen fundoplication or Nissen fundoplication plus gastrostomy tube insertion at AKHUN and GCH between 1st January 2010 and 31st December 2020. *Sample size and sampling method-* The study used the census method to recruit all children with GERD who had undergone Nissen fundoplication or Nissen fundoplication and gastrostomy from 1st January 2010 to 31st December 2020. *Study procedures-* Data was collected from the medical records and also through an interviewer-administered Paediatrics Quality of Life Inventory questionnaire through a phone call interview. *Data analysis:* Global quality of life score was generated as the mean of all the different domains of the HRQoL. Independent samples t-test was done to compare means of HRQoL for gender, complications, and comorbidities while Spearman's correlation was done for HRQoL and age.

Results: Eighty-two children had undergone Nissen fundoplication between 1st January 2010 and 31st December 2020. Eighty-four percent had comorbidities with 74.4% having neurological impairment. The rate of complications was at 33%. 91.5% had open Nissen fundoplication while 8.5% had laparoscopic Nissen fundoplication. Fifty-six children had a concurrent gastrostomy tube insertion. The global mean HRQoL score was 75.8 (SD: 23.5, 95% CI: 70.4 - 81.2). Nissen fundoplication failure rate was 9.8% while the mortality rate was 8.5%.

Conclusion: The global score of the health-related quality of life was acceptable as a majority of the children had an excellent quality of life.

17. Immediate Seven Day Outcomes and Risk Factors of Low Birth Weight Neonates at Referral Hospitals in Mwanza City, Tanzania

Corresponding Author: Shangwe Ezekiel Kibona

Background: Every year more than 20 million neonates are born with LBW. Ninety five percent of LBW neonates occur in developing countries. In Tanzania the incidence ranges from three to fifteen percent of live births. LBW are at high risk of developing adverse outcomes during neonatal period. The study based on immediate seven-day outcomes because as majority of neonatal outcomes occur within the first week of life. This study investigated immediate seven-day low birth weight outcomes and factors associated among the neonates at Referral Hospitals in Mwanza city.

Objective: To determine seven days' outcome and associated factors among neonates with LBW at referral hospitals in Mwanza city.

Methods: Hospital based observational prospective cohort study. LBW neonates were followed up for seven days in the neonatal units at referral hospitals in Mwanza city from July 2019 to August 2019. Pre-test structured questionnaires were used to collect maternal and newborns data. The data was entered to excel, cleaned and analyzed using STATA. Categorical variables were summarized as proportions while continuous variables were summarized as mean \pm standard deviation or medians \pm interquartile range and presented in tables or bar charts. Any p-value of <0.05 , at 95% confidence interval was regarded as statistically significant.

Results: 200 neonates were enrolled with median age of 0.8 days at baseline. Among them 74% had prolonged hospitalization due to sickness or poor weight gain, 5% died and 21% were discharged within seven days.

Prolonged hospitalization was associated with family income and place of delivery. Neonatal death was associated with family income and birth weight.

Conclusion: LBW neonates are at high risk of death and prolonged hospitalization due to sickness or poor weight gain. Associated factors of these outcomes were family income, delivery place, birth weight, and gestation age during first antenatal visit, mode of delivered and low APGAR score.

18. Improving child health through Vitamin A supplementation and deworming in Kenya: Post-Event Coverage Survey for Vitamin A supplementation of children aged (6-59) months and coupled services conducted in Bungoma and Trans Nzoia Counties

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Background: Micronutrient deficiencies are associated with malnutrition and predominant in developing countries. Vitamin A deficiency decreases resistance to infections, causes stunting and eye conditions that can progress to blindness if left unchecked and its prevalence in Kenya is estimated at 17.4%. Soil-Transmitted Helminth also a common infection, especially people living in poverty, greatly impairing their nutritional status. This, led to the implementation of several strategies including door-to-door, community outreaches and ECDE centers during the Malezi Bora (MB) event. MB strategy involves accelerated promotion and delivery

of maternal and child health interventions to enhance routine service delivery of; child immunization, Vitamin A supplementation (VAS) and deworming for children under-five and other prevention services. A post-event coverage survey (PECS) was conducted in December 2020 to estimate the true coverage of VAS and deworming, characterize missed children and determine the effectiveness of activities conducted prior to and during the event in Bungoma and TransNzoia counties.

Methods: A cross-sectional survey that employed a two-stage cluster sampling was conducted 4-6 weeks after MB event. The WHO/EPI cluster sampling methodology of 30 clusters x 30 households (n=900) to determine coverage rates was used. To ensure the selection of a representative sample of households, 30 clusters were randomly selected from the 2019 population census list in the two counties, using probability proportionate to size sampling. Thirty households were randomly selected per cluster. Households with at least one child aged 6-59 months at the time of November 2020 MB, health workers, community health volunteers and community leaders who participated in the MB event were interviewed. Data collection forms were uploaded to ODK and data transmitted to ONA-server. Data management was maintained through daily debriefing with supervisors to discuss submitted data, challenges faced and way-forward.

Results: The VAS coverage results in Bungoma (83.4%) were above the national target of 75%, while in TransNzoia the coverage was (70.9%). The deworming coverage results were lower than the national target at 44.9% in Bungoma and, 32.9% in TransNzoia. Receiving VAS is not influenced by the education level of the caregiver ($r=0.788$). Missing of VAS and deworming was largely attributed to health workers not visiting homes and caregivers not informed about the MB event.

Conclusion: Poor implementation of communication strategy and failure of health workers to visit some homes translated to missed opportunities. Recommendations made to strengthen the existing communication mechanisms, increase the number of health workers during the MB event, so as to increase coverage.

19. Incidence and Factors Associated with Unwanted Pregnancy among Adolescent girls and Young Women (AGYW) in Kampala, Uganda.

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Background: Unintended pregnancies account for 40.6% of all pregnancies among young women and are associated with poor neonatal and maternal outcomes including low birth weight, still births, and neonatal and maternal deaths. Pregnancy related complications are the leading cause of mortality among young women. We aimed to estimate the incidence and factors associated with unwanted pregnancy among adolescent girls and young women (AGYW) in Kampala, Uganda.

Methods: A prospective cohort study that enrolled 285 non-pregnant volunteers was conducted in Kampala Uganda among 14-24-year-old AGYW from January 2019 to December 2020. We used interviewer-administered questionnaires to capture socio-demographic and behavioral data. Participants were offered free oral, implant or injectable contraception throughout the study. Urine pregnancy testing was performed at quarterly visits. Incidence rate of pregnancy was estimated using the Kaplan-Meier technique and logistic regression used to determine the correlates of pregnancy.

Results: The mean [\pm Standard Deviation (SD)] age of enrolled volunteers was 20.5 (± 2.3) years. 21.1% engaged in sex work; 55.0% were employed in the hospitality, entertainment, or food vending sectors while 23.9% were unemployed. Mean (\pm SD) age at first sex was 15.7 (± 2.1) years. One hundred thirty-two (46.3%) did not take up contraception. We recorded forty-four (15.4%) pregnancies during 187.2 person years of follow-up (meaning 187 volunteers were followed for 1 year), an incidence rate of 23.5/100 (95% CI 17.5–31.6) person-years. Of these, 84.1% were not using contraception. Risk factors for incident pregnancy were having ≥ 2 sexual partners (aOR 1.01; 95% CI 1.0-1.02) and non-use of contraception (aRR 5.89; 95%CI 2.74-12.66).

Conclusion: The incidence of pregnancy in this population was high and associated with having multiple sexual partners and non-use of contraception. Sexual reproductive health education and services for AGYW should aim to improve uptake of effective contraception and subsequently to reduce incidence of unwanted pregnancy.

20. Incidence of Preterm Birth Admissions in Uganda, 2015-2019

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Background: Complications of preterm births are the largest cause of neonatal deaths and the second leading cause of death among children <5 years globally. The preterm birth rate in Uganda is estimated at 6.6%. Reduction of this rate is needed to achieve the United Nations Sustainable Development Goal to end all preventable deaths among newborns and children aged <5 years by 2030. We describe the trends and distribution of preterm births admissions in Uganda during 2015-2019 for advocacy, planning, and targeted interventions.

Methods: We used national preterm birth admissions data from 2015-2019 abstracted from the District Health Information System 2 (DHIS2) to calculate the national and regional annual incidence of preterm births. DHIS2 defines preterm birth as birth at <37 weeks of gestation. We used preterm birth admissions as the numerator and the total live births (LB) as the denominator. Significance of the trend of annual incidence was tested using modified Poisson regression with unbiased sandwich standard errors, considering calendar year as independent and preterm births as the dependent variable.

Results: The national annual incidence of preterm birth admissions/1,000 LB has significantly increased from 3 in 2015 to 14 in 2019 (Incidence Risk Ratio (IRR)=1.3, $p=0.003$). The annual incidence of preterm birth admissions/1,000 LB increased significantly in three regions of Uganda during 2015-2019 (Central Region from 3 to 21, IRR=1.5, $p<0.0001$; Western Region from 4 to 15, IRR=1.2, $p=0.04$; Northern Region from 3 to 10, IRR=1.2, $p=0.008$; Eastern Region from 2 to 8, IRR=1.3, $p=0.09$).

Conclusion: The incidence of preterm birth admissions increased nationally and regionally in Uganda from 2015-2019. There is a need to plan for and prepare health facilities to manage preterm labor and preterm babies and identify reasons for the increase. Equipping health facilities and training health workers to manage preterm labour and babies should be prioritized.

21. Inequities in unmet need for contraception among married women: Evidence from the PMA2020/Kenya survey

Corresponding Author: Gerald Mbutia Mahuro

Unintended pregnancy is a common global public health problem associated with significant health risks and social costs with 85M occurring in 2012. Innumerable health surveys have shown increased contraceptive use and access, despite not meeting demand leading to unmet need for contraception. This paper scrutinizes inequity in unmet need among married women of reproductive age using PMA2020/Kenya survey data. Cross-sectional design with multi-stage cluster random sampling technique involving random selection of nine Counties, 120 enumeration areas and 42 households was adopted. Face-to-face interviews using digital platform was done in seven survey rounds from 2014 to 2018 generating 35,185 interviews. Strongly-balanced panel data with 2,154 respondents per wave was analyzed using Stata® Ver14.2. Unmet need was high amongst pubescent (23.2%), higher parity (22.6%), rural residency (22.6%), informal education (36.0%) and poorest (24.8%). Concentration index was negative (-0.11, SE=0.01), implying poor households have unmet need unlike rich households. Un-adjusted and adjusted odds ratio was estimated to rise by 0.44 (95%CL=0.35-0.57, p -value<0.05) and 0.69 times (95%CL=0.34-1.42, p -value>0.05) with increased poverty levels. Creating contraceptive uptake demand must reciprocate unfailing supply of inexpensive methods targeting adolescents, higher parity, less educated and poorest. Consider involving spouses when discussing contraceptive methods, associated side-effects and individual health concerns.

Key words: Unmet need, contraception, inequity, barriers, concentration index.

22. Knowledge, Attitude and Factors affecting the utilization of postnatal care services among rural women in Kiganda District, Burundi

Corresponding Author: Adolphe Ndoreraho

Co-authors: Sabitu Kabir, Edouard Nkuzimana, Joseph Nyandwi

Background: Burundi is among countries in sub-Saharan with high maternal mortality rate. Postnatal care (PNC) is essential for both the mother and newborn. However, the proportion of women receiving PNC ranges from a 23%-72%. There has not been investigation of factors associated with the use of these services and no information about uptake in Kiganda District.

Method: We conducted a cross-sectional study in 2019 to determine the level of knowledge and attitude of mothers with children less than one-year-old towards PNC services as well as the level of its utilization and contributing factors in Kiganda district. The study involved 401 women.

Result: One hundred and seven (26.7%) women had good knowledge while 160 (39.9%) and 134 (33.4%) had inadequate and poor knowledge respectively. With regard to attitude, 95.3% of respondents had a positive attitude. One hundred and four (26.0%) mothers utilized PNC. Factors associated with the utilization of PNC services included occupation status, awareness, knowledge and provision of information.

Farmer mothers were 5 times {AOR: 5.09, 95%: [2.0361-12.7562]} less likely to attend PNC services. Mothers who were aware of PNC services were 3 times more likely to use them than those who were not {AOR: 3.04, 95% [1.8209-6.2197]}.

Mothers with good knowledge were 4 times {AOR: 4.32, 95% [1.8060-10.3757]} more likely to utilize PNC services. PNC utilization also increased with women whom health workers provided information.

Conclusion: We concluded that the level of knowledge was poor while the attitude was positive. The level of utilization was low influenced by level of knowledge, occupational status and the provision of information. We recommended that efforts to raise awareness and improving socioeconomic conditions of women should be strengthened. There is also need for more research in health facilities in order to understand the health worker's challenges in PNC services provisions.

Key-words: Postnatal care, utilization, rural women, Kiganda District

23. Lifestyle habits associated with adolescent overweight and obesity in Ilala district Dar es Salaam

Corresponding Author: Gloria Gachocha

Background: Prevalence of being overweight or obese is increasing rapidly and as a consequence developing countries are experiencing a double burden of malnutrition along with its complications. Adolescents are at a crucial stage in life where lifestyle habits are formed and well established. Unhealthy lifestyle habits contribute to the energy imbalance that causes being overweight, namely physical inactivity, sedentary lifestyle and poor dietary choices. A better understanding of unhealthy modifiable lifestyle habits that adolescents lead in relation to overweight and obesity is necessary for targeted interventions. There is paucity of data on the lifestyle habits that Tanzanian adolescents currently lead. Hence, we set out to determine the lifestyle habits that secondary school adolescents in Ilala district Dar es Salaam lead and their association with being overweight or obese.

Methods: We conducted a school-based cross-sectional study. 788 adolescents aged 15-18 were randomly recruited in 5 secondary schools across Ilala district selected by multistage cluster sampling. Anthropometric measurements of weight, height and BMI for age were performed and self-reported questionnaire collected data on physical activity per week and diet frequency intake per week including screen time. Multiple logistic regression was used to examine lifestyle factors with overweight and obesity.

Results: Prevalence of overweight, obesity and overall overweight/obesity was 17.5%, 6.7% and 24.2% respectively. Logistic regression analysis showed that adequate physical activity OR 0.48 CI 95% 0.34-0.68 and adequate dairy OR 0.32 CI 95% 0.12-0.75 were protective against overweight/obesity while mobile/TV screen-time during the week increased overweight/obese risk OR 1.47 CI 95% 1-2.2.

Conclusion: The present study identified physical activity and adequate dairy intake associated with being protective against overweight/obesity among adolescents in Ilala district Dar es Salaam. Primary prevention targeted at an active lifestyle and healthy diet should be a public health priority.

24. Monitoring Progress in Reproductive, Maternal and Child Health (RMCH) Following Devolution (2012-2018) Of Health Services in Kenya: A Trend Analysis

Corresponding Author: Dr O. Deborah Awe

Introduction: Although there has been some improvement in Maternal, Child and Health in Kenya in the last decade, this progress has not met up with the targets set towards achieving Universal Health Coverage (UHC).

Objective: This study aimed to determine the progress in Reproductive, Maternal and Child Health (RMCH) following Devolution of Health services in Kenya.

Methodology- Data was collected from the District Health Information System the World Health Organization and the Ministry of Health. Descriptive study was used to explain the proportion of these indicators using Counties as the subjects (i.e., 47). This was carried out using frequency tables, graphs, plots (including time series plot), etc. Changes in the Indicators selected was modeled over time using General Linear Model-One-Way Repeated measures ANOVA across the 47 counties. R software version 3.3.1 and SPSS version 13 were utilized to analyze trends.

Result: This study showed a decline in the average proportion of women screened for cervical cancer from 2012 to 2018. In this same study period, there appears to be an increase in uptake of either long or short acting family planning, proportion of women attending at least 4 ANC visits and a reduction in the proportion of under 1 child immunized while the proportion of children from 0 to 59 months with severe stunting has increased. Using a One-Way Repeated measures ANOVA across the 47 counties with respect to time, there was found varied significant difference across the years i.e., from 2012-2018, for each of the selected indicators. For example, there was significant difference, amongst women who attended at least 4ANC, across the years except between 2012 and 2018 (i.e. $P=0.22$; $\alpha=0.05$).

Conclusion: Comparing 2012 and 2018 data there appears to be some progress in the proportion of women using either short or long-acting family planning methods (11% to 14%) while there appeared to be no progress, rather reduction in the proportion of women attending at least 4 ANCs (79% to 76%), women screened for cervical cancer (8 to 6/1000women) and

proportion of under 5 children severely stunted (10 to 13/1000). In this study, we found remarkable inequalities across counties even with well performing indicators, especially Mandera, West Pokot, Uasin Gishu, Samburu, Tana River being the least performing counties. To speed up attainment of UHC by 2030 there is need to invest more on the least and moderately performing counties and uphold the positive changes in the counties performing relatively better.

25. Opposed to non-acceptance of vasectomy in Burundi. Case of three health structures: one rural and two urban

Corresponding Author: Irakoze Innocente

Objective: To compare the epidemiological profile of men who are for or against vasectomy.

Introduction: Contraception is a major concern in public health. To this day, it is mostly carried out by women, although there is a wide range of male contraceptive methods

Method: A survey of 310 men who were chosen at random, including 150 men in rural areas and 160 in urban areas for a month from July 27, 2019 to August 27, 2019.

Results: Of the 310 men, 160 were from rural areas, 150 were from urban areas. The relationship between accepting or not accepting vasectomy and place of residence was significant (44.4% for urban men vs 12.7%) ($P = 0.000$) The vasectomy depends on the size of the household ($P = 0.00$) because it is the men who have 5 or more children who are much more for the vasectomy (32.8%) followed by those with medium-sized families of 3-4 children (30.9%) To accept a vasectomy does not depend on the man's education ($P = 0.223$). Vasectomy was not related to the occupation of the man ($P = 0.146$). However, the farmers being against at 78.9%. To accept a vasectomy is not related to the age of the man ($P = 0.923$). We find that at all age groups the proportions of those who are in favor are almost equal: those under 31 years old (30.3%), 31 to 35 years old (30.9%), from 36 to 40 years old (27.7%) and 40 years and over (26.3%).

Conclusion: Of the five parameters analyzed, only two factors explain whether or not to accept vasectomy: the place of residence and the size of the household. It is urban men and men with 5 or more children who are much more for vasectomy.

Keys words; Vasectomy, men, epidemiological profile

26. Pediatric Nursing care and its practice in health care facilities in Burundi

Corresponding Authors: Daniel Muhayimana

Introduction: Pediatric nursing cares are among the most important care needed referring to the category of patients. A gap of the best practice in Pediatric Nursing Care (PNC) had been publically a major problem of health and raises the rate of morbidity and mortality. The lack of nursing guidelines, low level of studies, experience at work and low economic status of Health Care Facilities (HCFs) were the main problems assessed in these three HCFs (HUCK, VNC and MHK) in this study.

The purpose of this study is to assess the knowledge of nurses during their practices in Pediatric Wards of HCFs and to provide a better contribution.

Method: A descriptive study design was used in this study during the period of one month. 43, 25 and 30 nurses were selected among 98 nurses by using Dilman formula. A questionnaire with 5 parameters was distributed. Data were typed using Microsoft word and analyzed using Statistical Package for Social Scientists version 16 software (SPSS).

Results: The current study found that the majority of nurses don't know to make the best nursing diagnosis neither the factors related to the implementation of EBP in PNC. The nurses have shown different barriers often met during their practices. The all process of nursing diagnosis was not recognized with the average of 97.6% of nurses.

Conclusion: Even if the nurses have some experience at work they express their weakness based on low level of study, lack of knowledge and trained professionals on work and the pediatric nursing guidelines.

Keywords: Pediatric Nursing, Nursing Theories, Pediatric Nurse, Role of Pediatric Nurse, Evidence Based Practice

27. Perceived quality of childbirth care among postnatal mothers in Tanzania

Corresponding Author: Livuka Nsemwa

Co-authors: Sebald Leshabari, Rose Laisser, Benson Kidenya

Background: Poor quality of maternal health services has been a consistent challenge in most of sub-Saharan African countries. Tanzania is faced with unacceptable numbers of maternal deaths and stillbirths. Women's views and responsiveness of perceived quality of childbirth care are among important indicators of quality service-provision. This study aimed to assess perceived quality of childbirth care among postnatal mothers, using the WHO responsiveness concept.

Methods: Descriptive cross-sectional design with probability systematic sampling was conducted in 2019 to obtain 426 post-natal mothers attending Makongoro clinic, Mwanza, Tanzania. Adapted ReproQ questionnaire was used to collect data and analysis was done using STATA version 14. The five response categories for responsiveness attainment were dichotomized as 'poor' and good responsiveness, the ranking of the domain performance and importance were analyzed according to frequency scores. Logistic regression analysis was applied to identify personal background characteristics and health related factors that may have influenced perceived responsiveness to childbirth care.

Results: Of all women interviewed 227(53.3%) reported good responsiveness. The domains with highest performance ratings were prompt attention 292(68.5%), communication 278 (65.3%) and dignity 256(60.1%), with lowest performance were choice and continuity of healthcare provider 60(14.6%), autonomy 143(33.6%) and social support 170(39.9%). The domains which were ranked to have high relative importance were prompt attention 145(34%) and dignity 89(21%). Facility types significantly influenced the overall rating on childbirth care services.

Conclusion: Only half of women interviewed perceived health system responsiveness to childbirth care to be good. Areas that need attention are women's choice of health care provider, respect for their right to informed choice, access to social support, prompt attention and dignity. Place of birth influenced perception of health system responsiveness. Poorly performing domains need government and health system efforts to develop strategies to improve care for women and babies.

28. Prevalence of cardiovascular risk factors in pregnant women in a hospital setting in Bujumbura

Corresponding Author: Eugène Ndirahisha

Co-authors: Elysée Baransaka, Thierry Sibomana

Objective: The objectives were to evaluate the prevalence of cardiovascular risk factors in pregnant women in Bujumbura.

Patients and methods: This was a prospective descriptive study conducted at Kamenge Military Hospital and Kamenge University Hospital in Bujumbura, from June 2018 to March 2019. It focused on pregnant women who came to antenatal consultations at the two hospitals with one or more risk factors. Recruitment was systematic for any consenting pregnant woman after an informed explanation.

Results: A total of 1467 pregnant women attended antenatal consultations at the two hospitals. Of these, 163 had at least one cardiovascular risk factor, a prevalence of 9%. The mean age was 32.9 ± 6.0 years with extremes of 15 and 45 years. The prevalence of risk factors was: arterial hypertension: 54.6%; sedentary lifestyle: 48.4%; overweight: 39.2%; diabetes: 11.7%; dyslipidemia: 21.5%; alcohol: 34.4%; proteinuria: 23.3%; anemia: 14.7%; HIV+: 8.0%; renal failure: 1.2% and history of cardiovascular pathology in direct relatives:34.3%.

Conclusion: Cardiovascular risk factors are frequent in pregnant women in Bujumbura. They are dominated by hypertension, sedentary lifestyle and overweight that are all avoidable or correctable.

Keywords: cardiovascular risk factor, pregnant woman, prenatal consultation

29. Prevalence, distribution and factors associated with anaemia among secondary school adolescents in Kibaha Town Council, Tanzania

Corresponding Authors: Angela E.Shija

Co-authors: Judith Msovela, Calister Imeda, Erick Mgina

Introduction: Adolescents are in a transition period from childhood to adulthood which is characterized by rapid growth and high demand for nutrients. Anaemia is one of the nutritional problems affecting adolescents because of unmet demand for iron. The purpose of this study was to determine anemia prevalence, distribution, and associated factors among secondary school adolescents.

Methods: A cross sectional study was conducted in March 2020 which involved adolescent girls and boys aged 12-19 years from 6 public schools of Kibaha Town Council. A semi structure survey questionnaire and anaemia assessment were conducted to all school club members who were willing to participate in the survey. Anaemia testing was performed using Hemocue portable hemoglobinometer and the cut-off points for girls and boys were 12.0 and 13.0g/dL respectively.

Results: A total of 461 adolescents (324 girls and 137 boys) with mean age of 14.6 years participated in the survey. About 78.3% (girls 281 and boys 80) had their haemoglobin (Hb) level tested for assessing anaemia status. Adolescent girls (49.8%) had significantly higher prevalence of anaemia compared to adolescent boys (20.0%); $p=0.000$. Most of the cases among adolescent girls and boys were mild anemia, 61.4% and 68.8% respectively. The difference of anemia by severity among adolescents' girls and boys was highly significant, $P = 0.000$. Anemia was also significantly higher among menstruating girls (52.5%) than non-menstruating girls (33.0%); $p=0.000$. There was no significant difference in anemia among adolescents who reported to receive deworming drug and Iron-folic supplement 6 months prior the study

Conclusion: Adolescent girls are high affected by anemia than boys. Nutritional intervention for addressing anemia in adolescents should consider gender differences which affects the demand for iron for growth and menstruation.

30. Recurrence of Post-Term Pregnancy and Associated Factors among Women Who Delivered At Kilimanjaro Christian Medical Center (KCMC) In Northern Tanzania from 2000 to 2018; A Retrospective Cohort Study

Corresponding Authors: Modesta Mitao

Background: Post-term pregnancy is a health problem of clinical importance; it is associated with fetal and neonatal morbidity and mortality. Studies have documented elsewhere that post-term pregnancy tends to recur in subsequent pregnancies. This study provided evidence for informed interventions to reduce the recurrence risk of post-term pregnancy towards reducing associated maternal and fetal complications.

Objective: To determine the recurrence risk of post-term pregnancy and associated factors among women delivered at Kilimanjaro Christian Medical center (KCMC) referral hospital in Northern Tanzania from 2000 to 2018.

Methodology: This is retrospective cohort study which utilized the KCMC zonal referral hospital medical birth registry cohort data for 43472 women delivered between 2000 and 2018. Data were analyzed using STATA version 15 software. Log-binomial regression with robust variance estimator determined the factors associated with post-term pregnancy and recurrence of post-term pregnancy adjusted for other factors.

Results: A total of 43472 women were analyzed, the proportion of post-term pregnancy was 11.4%, and the recurrence risk was 14.8%. Factors associated with post-term pregnancy were advanced maternal age ≥ 35 years (aRR: 0.80; 95%CI: 0.72, 0.90), urban residence (aRR: 0.89; 95%CI: 0.83, 0.95), having secondary or higher education (aRR: 0.89; 95%CI: 0.82-0.96), being employed (aRR: 0.78; 95% CI: 0.70, 0.86), and being overweight/obese (aRR: 1.08; 95%CI: 1.01, 1.15). Recurrence of post-term pregnancy was associated with having history of previous post-term pregnancy (aRR: 1.75; 95%CI: 1.44, 2.11), advanced maternal age ≥ 35 years (aRR: 0.80; 95%CI: 0.65, 0.99), being employed (aRR: 0.68; 95%CI: 0.55, 0.84), and delivering newborns weighed ≥ 4000 gm (aRR: 5.05; 95%CI: 2.80, 9.09).

Conclusion: Post-term pregnancy is highly associated with recurrence risk in subsequent pregnancies. Clinical counselling of women at risk of post-term pregnancy is recommended for proper and timely management to prevent adverse neonatal and maternal outcomes.

31. Risk factors for maternal mortality among women who had caesarean section delivery in Kenya: a case-control study.

Corresponding Author: Pato Dindi Nelly,

Co-authors: Pamela Godia, Helen Allott, Charles Ameh

Background: Caesarean section (CS) is a major surgical procedure that should be performed as a life-saving intervention for a mother and/or her baby. About 37% (138) of women who died in Kenya hospitals in 2014, were delivered by CS. The World Health Organization (WHO), has proposed the routine use and analysis of the Robson Ten Group Classification (RTGC), as a mechanism to assess the quality of care and clinical management practices within and between facilities.

Objective: The objectives of this study were to determine the risk factors associated with CS related deaths and to assess the feasibility of applying the RTGC in Kenya.

Materials and Methods: We used a case-control study design. Data extracted from case notes of 126 women who died after CS (cases) was compared to 252 women who did not die (controls) after CS in 2014. The adjusted odds of death (95% CI, $p=0.05$) were determined for several risk factors using multiple regression analysis.

Results: After controlling for confounders, postpartum hemorrhage (PPH) (Odd ratio (OR) 27.50, 95% Confidence interval (CI):8.40-90.13), blood transfusion (OR 14.59, 95% CI: 3.95-53.91), patient referral (OR 2.68, 95% CI:1.22-5.89), referral to Intensive Care Unit (OR 27.50, 95% CI:8.40-90.13), and general anesthesia use (OR 11.45, 95% CI:4.56-28.74), were risk factors for death amongst women who had CS. 45% (96) of the women were having their first term baby following spontaneous onset of labor (RTGCS 1) and 33% (70) had a previous CS (RTGCS 5).

Conclusions: Most of the identified risk factors are modifiable and related hence can be mitigated.

Recommendations: Prioritizing early identification and treatment of women at risk of PPH, use of regional anesthesia where possible, CS by experienced staff, early referral of adequately resuscitated women presenting with complications, adequate blood transfusion services, the prospective use and analysis of RTGCS, combined with maternal and perinatal death audits, is likely to reduce the risk of death after CS in Kenya.

32. Sexuality and the risk of teenage pregnancy in Burundi

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Introduction: Early sexual activity and non-use of contraceptive methods are often linked to an increased risk of teenage pregnancy and dropping out of school, which can seriously jeopardize their future. This study describes sexuality and the risk of pregnancy among adolescents in Burundi.

Methods: A four-stage survey design, with 110 clusters, was conducted in 2019. 2085 adolescents aged 10-24 years were interviewed in 11 of the 18 provinces of Burundi.

Findings: Regardless of gender, 18.5% of adolescents have already had sex. This proportion is 6.1%, 19.2% and 50.7% for the age groups of 10-14 years; 15-19 and 20-24, respectively.

The percentage of pregnancy is 21.9% among young girls aged 15-19 and 49.4% among those of 20-24 years; no girl in the 10-14 age group has ever been pregnant.

Regardless of gender or age, 24.9% adolescents used condom the last time they had sex. Among those who did not use it, about one in five (19.1%) used another method that was primarily the pill or intra-uterine device.

Conclusion: Premature sexuality and pregnancy are reality among adolescents in Burundi; and one in five adolescent girls aged 15-19 has been pregnant. These results are particularly worrying in a context where pregnancy is one of the major reasons for dropping out of school among young girls. We recommend that the Government of Burundi should strengthen adolescent sexual health promotion, particularly regarding access to information and quality health care and services in order to help accelerate the achievement of sustainable development goal 3.

33. Spatial distribution and predictive factors of antenatal care in Burundi

Corresponding Author: Arnaud Iradukunda

Background: The use of obstetric care by pregnant women enables them to receive antenatal and postnatal care. This care includes counseling, health instructions, examinations and tests to avoid pregnancy-related complications or death during childbirth. To avoid these complications, the World Health Organization (WHO) recommends at least four antenatal visits. His study deals with the spatial analysis of antenatal care (ANC) among women aged 15 to 49 with a doctor and associated factors in Burundi.

Methods: Data were obtained from the second Demographic and Health Survey (DHS). ANC prevalence was calculated as indicator of four or more antenatal visits recommended by WHO. A spatial analysis to map the ANC prevalence by region and province, and to interpolate the cluster-based ANC prevalence at unsampled data points using the kernel method with an adaptive window. Factors associated with ANC were assessed using binary mixed logistic regression. Data were analyzed using R software, version 3.5.0.

Results: The findings of this study clearly show that ANC prevalence varies from 0 to 16.2% with a median of 0.5%. A pocket of prevalence was observed at the junction between Muyinga and Kirundo provinces. Low prevalence was observed in several locations in all regions of the provinces. They also show that woman's education level and place of delivery are significantly associated with antenatal care. Women with high education level were more likely to visit for their pregnancy than others. Women with hospital as place of delivery visited more than them who give birth at home or at community health care center.

Conclusion: Prevalence of ANC is not the same across the country. It varies between regions and provinces. Besides, there is intra-regional or intra-provincial heterogeneity in the prevalence of ANC. Woman's education level and place of delivery are significantly associated with antenatal care.

34. Streptococcus agalactiae colonization is predominant among pregnant women with HIV infection and is neither predicted by hospitals' level nor trimesters in Mwanza, Tanzania

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Background: Group B *Streptococcus* (GBS) is a part of the gastrointestinal and vaginal microbiota, and one of the commonest pathogens affecting pregnant women. Its rate of colonization varies widely globally due to laboratory investigation methods, socio-cultural, epidemiological and clinical factors among pregnant women. Limited information exists on the burden of GBS among pregnant women in Tanzania.

Methods: We conducted a cross-sectional study from February to June 2021 involving 872 pregnant women attending to primary health care to tertiary level hospitals. Data was collected using a structured questionnaire. Two swabs (vaginal and rectal) were taken from each participant, and cultured on conventional blood agar and CHROMagar™ Strep B, followed by antimicrobial susceptibility testing using disk diffusion method.

Results: The overall proportion of *S. agalactiae* colonization was 24.5% (214/872), and colonization was significantly more prevalent in the rectal compared to vaginal samples [21.1% (184/872) versus 8.83% (77/872), respectively; p-value <0.001]. *S. agalactiae* recovery was significantly better on CHROMagar™ Strep B agar than blood agar [24.4% (213/872) versus 18.8% (164/872)], respectively, p-value = 0.004. *S. agalactiae* colonization was significantly higher in HIV-positive than HIV-negative women [63.1% (70/111) versus 18.9% (144/761)], respectively; OR (95% CI) = 7.33 (4.77 – 11.29, p-value <0.001). Cultivated *S. agalactiae* isolates were completely sensitive to ampicillin (100%), and highly sensitive to erythromycin (76.3%), clindamycin (84.4%) and vancomycin (98.1%). No association was found between GBS colonization and health care facility levels or pregnancy trimesters.

Conclusions: This is the first larger scale assessment of GBS colonization in pregnant women residing in Mwanza. HIV positive pregnant women show higher rates of colonization and routine screening of GBS is recommended during routine antenatal clinical visits. Ampicillin is suitable for prophylaxis and treatment of GBS. Serotyping and genotyping of these isolates will be pursued to guide on future preventive and vaccination strategies.

Keywords: *Streptococcus agalactiae* colonization, HIV infection, pregnant women, Tanzania

35. Supporting the continuum of care with a coordinated, multi-level digital referral system for people-centered care.

Corresponding Author: Angel Dillip

Challenges in quality health care within the Tanzanian primary health system contributes to thousands of preventable deaths each year. Lack of coordination among private and public providers- private Accredited Drug Dispensing Outlets (ADDOs), and public health facilities and community health workers (CHWs)- means that far too often, people fall through the cracks of the care system. Implemented in November 2020, in close collaboration with President's Office Regional Administration and Local Government (PORALG) and Ministry of Health Community Development Gender Elderly and Children (MoHCDEG) The Afya-Tek program in Kibaha, Tanzania improves coordination among both public and private providers to strengthen the care system and ensure quality care is accessible to all. Afya-Tek, a digital care and referral system connecting ADDOs, health facilities and CHWs around maternal, child and adolescent health, enables case management with decision support and referral tracking, enabling appropriate and timely follow-up care. With nearly 500 system users and 174,499 registered beneficiaries (55.6% female and 44.4% male including 18% under five children, 11% adolescents and 71% population above 20 years) the program has demonstrated that Afya-Tek is a robust system capable of handling the complexity of a multitude of users and a high patient load. Given Afya-Tek's integration of the public and private health system and significant coverage, Afya-Tek serves as a strong platform to generate learnings that are not currently available in existing industry research. By employing a realist evaluation methodology, we integrated research into the program design, and systematically gathered learnings in several areas to inform how to operate at scale. Examples of learning areas include community health care seeking behaviors across public and private sectors—particularly among adolescents; the potential of better integrating ADDOs within the public health care system; and the benefits of an integrated, client-centered health system for quality care. In this presentation, Afya-Tek partners will share about learnings from Afya-Tek so far and how the approach on public-private engagement and innovation in the primary care system leads to strengthening health systems and improving program health indicators in Tanzania.

36. The Association between Human Papillomavirus and Cervical High-Grade Cytology among HIV Positive and HIV Negative Tanzanian Women: A Cross Sectional Study

Corresponding Author: Patricia S Swai

Introduction: Human papilloma virus (HPV) is the causative agent of precancerous lesions and cervical cancer, the most common cause of cancer deaths in Tanzanian women. Early detection and treatment of precancerous lesions is important in the prevention of cervical cancer cases.

Material and methods: We conducted a cross sectional study among 3390 Tanzanian women aged 25-60 years. Information on lifestyle habits was collected, and women underwent gynecological examination with collection of cervical cells for

conventional cytological and HPV testing. Blood samples were tested for HIV. The association between cervical high-grade cytology (HGC) and potential risk factors was examined using multivariable logistic regression adjusting for age, HIV and HR HPV.

Results: The prevalence of HGC was 3.6% and low-grade cytology 8.3%. In women who were both HR HPV positive and HIV positive, the prevalence of HGC was 28.3%. It increased by age and was 47% among women aged 50-60 years. Women, who had their sexual debut at age 9-15 years and 16-18 years, respectively, had 2.5- and 2.4-times increased odds of HGC compared with women having sexual debut at age 21 years and older. HIV positive women had increased odds of HGC in comparison with HIV negative women after adjustment for age and HPV (OR=2.95, 95% CI: 1.92-4.54). HR HPV positive women had 100-fold increased odds of HGC compared with HR HPV negative women (OR=96.6, 95% CI: 48.0-194), and this estimate was higher among HIV positive women (OR=152.2, 95% CI: 36.1-642.0).

Conclusion: Increasing age, early age at first intercourse, HR HPV and HIV infections are associated with a substantially increased risk of HGC.

Key message: HPV infection in HIV positive women increases the risk of pre-cancerous lesion.

37. The Distribution of Human Resources for Reproductive, Maternal, Neonatal, Child and Adolescents' Health in Zanzibar, Tanzania

Corresponding Authors: Michael Munga

Background: The availability and fair distribution of health workers is critical for effective delivery of all health care services not just those pertaining to Reproductive, Maternal, Neo-natal, Child, and Adolescent Health (RMNCAH).

Objective: The objective of this paper was to estimate the magnitude and understand the pattern of uneven distribution of the public sector RMNCAH workforce in Zanzibar.

Methods: This was a cross-sectional study which analyzed the recent physical verification of Human Resources for Health data in Zanzibar with a particular focus on RMNCH health workforce.

Results: In total the Zanzibar health workforce is currently estimated to be 4,269 workers. Out of these 4.3% are Medical officers, 1.4% Assistant Medical officers, Clinical Officers (4.8%), Nurse Midwives (9.7%), Nursing Officers (1.6%) and 'Health Orderlies' constituted the biggest proportion (18.6%). Health workforce estimates in Zanzibar did not include community workers, although these are intended in many parts of the world to address the low access to more qualified workers. The recent Human Resources for Health physical verification exercise, which classify health workers based on international occupation codes, do not have separate classification codes for community health workers.

Conclusion: There are enormous shortage of RMNCAH health workers in Zanzibar. On top of these shortages the health workforce is unevenly distributed disproportionate to districts populations and in favor of more centrally located urban districts. There is a need to widen the policy space to more effectively accommodate actions and strategies that may lead to a more equitable distribution of RMNCAH health workforce in Zanzibar and thus improve RMNCAH health outcomes.

38. The impact of training on perceived performance in reproductive, maternal, and newborn health service delivery among healthcare workers in Tanzania: A baseline- and endline-survey.

Corresponding Author: Tumbwene Mwansisya

Background: Delivery of quality reproductive health services has been documented to depend on the availability of healthcare workers who are adequately supported with appropriate training. However, unmet training needs among healthcare workers in reproductive, maternal, and newborn health (RMNH) in low-income countries remain disproportionately high.

Methods: The study used a quasi-experimental design using single group pre-and post-intervention evaluation strategy. Significance was set at $p < 0.05$.

Results: TNA was administered to 152 and 216 healthcare workers at baseline and endline respectively. Participants were matched on their age and duration in RMNH services, but differed in age and duration of employment. Comparison between baseline and endline by using the training needs analysis questionnaire scores showed statistically significant positive changes ($p < .05$) in most training needs analysis items, except for some items including those related to research capacity and provision of health education for cancer.

Conclusions: The findings revealed that the training and onsite clinical mentorship program that address the actual needs of healthcare workers to have significant positive changes in perceived performance in a wide range of RMNH services. However, further studies with rigorous designs are warranted to evaluate the long-term effect of such training programs on RMNH outcomes.

39. The Prevalence of Sexually Transmitted Infections and risk factors among young adult female, Mbeya-Tanzania

Corresponding Author: Anifrid Mahenge

Co-authors: Wolfram Mwalongo, Jonathani Mnkai, Regina Mgaya, Wilyhelmina Olomi, Christof Geldmacher, Ruby Mcharo

Background: Sexually Transmitted Infections (STIs) are currently the global public health problem with serious threat to the infected individuals, either with symptoms or asymptomatic. Most of these curable STIs are treated syndromically and untreated cases cause complications in pregnancy and perinatal sequelae, chronic pelvic diseases and increased risk of HIV acquisition. This was cross sectional study which investigated the prevalence and risk factors of 7-STIs from young adult females. **Methods:** This study was conducted since April 2020 total of 170 stored samples at NIMR-MMRC were randomly selected from women young females aged 18-24 years in Mbeya universities. 150 cytobrush and 20 urine samples were extracted using Qaigen kit and detected with 7-essential STIs assay multiplex CFX96 system. Data were analyzed using Stata 14 and graph pad prism software.

Results: The overall prevalence of STIs was 81.33% of which (*Mycoplasma genitalium* (MG), *Chlamydia trachomatis* (CT), *Neisseria gonorrhoea* (NG), *Trichomonas vaginalis* (TV) 19.33% are public health important pathogens. >50% of females diagnosed with STIs pathogens they had no obvious STIs symptoms. Also, 78% of all females had poor knowledge of STIs of which 52.67% was first year university females and 66.67% non-residence respectively. High performance of Seegene observed using cytobrush with the sensitivity and specificity of 83.33% and 92.87% against CT/NG geneXpert.

Conclusion: High prevalence of STIs among young adult females revealed who are vulnerable to STIs. The crude risk for STIs are gender, sex experience, age, knowledge and residence. Most of STIs are asymptomatic with multiple infections whereas cytobrush is reliable for STIs diagnosis. Further research is needed to report STIs pathogen prevalence in general population

40. Trend and Factors Associated With Early Antenatal Care Visit among Pregnant Women Aged 15-49 Years in Tanzania from 2004 to 2015/16

Corresponding Author: Cecilia Anthony

Co-authors: Prof Sia E Msuya, Prof Jenny Renju, Caroline Amour

Background: Early initiation of antenatal care (ANC) reduces maternal and perinatal mortality. Tanzania has shown significant improvement in ANC attendance and in 2015/16, 98% of Tanzania women attending at least one appointment with a skilled provider during the entire pregnancy, but only 24% attended in the first trimester of pregnancy.

Objective: This study aimed to determine trend and factors associated with early antenatal care visit among pregnant women aged 15-49 years in Tanzania from 2004 to 2016.

Methods: The study used secondary data from Tanzania Demographic and Health Survey from 2004 to 2016. This study included 17944 women aged 15-49 years. Data were analyzed using Stata version 13. Categorical and continuous variables were summarized using descriptive statistics and using weighted proportions. A Poisson regression analysis was done to determine factors associated with early antenatal care visit. A multi-variable Poisson decomposition analysis was done to determine factors associated with change in early ANC visit among pregnant women in Tanzania from 2004 to 2016.

Results: A total of 17,944 women in this study. The overall median age (\pm IQR) was 27 years (\pm 20-37) and was similar across the three surveys. Early ANC visit have been increasing overtime from 14.5% in 2004/05 to 15.4% in 2010 and then to 24.9% in 2015/16. The identified determinant of early ANC visit were: age at delivery, mother's education, zone of residence, parity, and distance to health facility, household wealth index and desire of the last child.

Conclusion: Trend in early ANC has gradually increased in Tanzania. Factors that contribute to the change in early ANC are changing over time with mother's education, parity and wealth index being the main contributors for changes across the three surveys. Therefore, efforts to educate women are highly recommended so as women can understand the importance of early booking.

41. Understanding the Influence of Parent-adolescent Communication on Sexual and Reproductive Health Behavior of Adolescents in Uganda: A Case Study of Gulu District, Northern Uganda.

Corresponding Author: Morrish Humphrey Ojok

Background: Adolescent risky sexual behaviors is a growing public health concern in Sub-Saharan Africa. It has potentially devastating long-term consequences, including early pregnancy, sexually transmitted infections, and HIV/AIDS. Studies show that communication of parents' and adolescents' sexual and reproductive health (SRH) may effectively reduce risky sexual behaviors. This study examined the influence of parent-adolescent SRH communication on adolescent behaviors in Northern Uganda.

Methods: A community-based cross-sectional study was undertaken on 384 adolescents and 275 parents who live in urban and rural areas of Gulu District in northern Uganda to explore parent-adolescent SRH communication; The study applied a generalized ordered logit model to investigate the association of SRH communication with adolescents' SRH behavior.

Results: 55.3% of respondents were female, 57.8% adolescents, and 42.2% parents; Male respondents were 44.7% of these, 40.2% were parents, and 59.8% adolescents; 42.6% of adolescents were sexually active. 52.7% of parents (70% mothers; 53% fathers) initiated and engaged in SRH communication, more girls (85%) than boys (67%) received SRH communication. Multivariate logistics regression showed that parent-adolescent SRH communication is associated with condom use at first intercourse (OR = 3.32, CI 95%: 1.68- 6.56), and late initiation of SRH communication is associated with younger age (≤ 15 years old) sexual debut (OR=0.15, CI 95%: 0.07-0.32).

Conclusion: Parents in Uganda engage in SRH communication; mothers engage more than fathers, and girls are more talked to than boys; Parent-adolescent SRH communication is associated with safe adolescent sexual behaviors. Interventions should promote parent-adolescent SRH communication to help reduce the high prevalence of early pregnancy, STIs, and HIV amongst young people in Uganda.

42. Use and Completeness of Partograph and Associated Factors in Mwanza Region; A Cross –Sectional Study in Public and Designated Hospitals

Corresponding Authors: Jane Elirehema Mcharo

Background: Proper use of partograph reduces maternal and foetal morbidity and mortality. In 2015 the use of partograph in selected regions in Tanzania was approximately 50%. Mwanza and lake zone has reported high maternal mortality but there is inadequate information on the use and completeness of partograph. The study aimed to determine use and completeness of partograph and associated factors in Mwanza region.

Methodology: A cross-sectional study was conducted in public/designated hospitals in Mwanza from January to March 2019. Random sample of Partographs for deliveries conducted in December 2018 were reviewed. Characteristics of midwives who conducted deliveries was obtained by using questionnaires. Measures of central tendency and dispersion were used for continuous variables, frequency distributions for categorical variables and Logistic regression to calculate Odds ratios and their associated 95% confidence intervals as a measure of association between Partograph completeness and independent variables.

Results: Of 3103 deliveries, 2408 (77.6%) had partograph filled. Of 2408 partographs, 853 were randomly selected and reviewed in which 373 (43.5%) were completely filled. Of 150 midwives involved in the study, 134 (89.3%) had good knowledge on partograph. Significant difference was found with regards to completeness of partograph between Regional/Zonal and District/Designated hospitals. Factors associated with partograph completeness included level of education of health workers with degree level having higher odds [aOR7.49(95% CI)2.10-26.66], midwives with long experience in Labour ward were more likely to complete partograph [aOR 3.93 (95% CI)1.62-9.51] sex of provider [aOR8.38(95%CI) 6.46-31.99], Training on Emergency Obstetric care [aOR1.36(95%CI)0.81-2.29] and Knowledge on partograph [aOR2.37(95%CI)1.39-4.04]. Hospitals with partograph forms, guidelines and policy to use partograph had 470(63%) and 478(61%) respectively of partograph completeness

Conclusion: There is inadequate use of partograph, and also completeness of vital parameters in the Partographs is low especially in the Districts/Designated hospitals. There is need for regular mentorship and on job training to newly employed health providers.

Key Words: Partograph, Use, Completeness, deliveries, Midwives

43. Use of social media influencers to increase uptake of HIV and SRH services uptake among adolescents

Corresponding Authors: Jamie Arkin

Social media platforms have become a common source for health information among youth across the world. Aifluence and Marie Stopes Kenya collaborated to conduct a social media, influencer-driven marketing campaign within a sub-region of Nairobi called Eastleigh, with the aim of increasing uptake of HIV/AIDS Testing Services (HTS), STI testing and treatment, and Cervical cancer screening among adolescents and young adults. Aifluence utilized AI to identify and onboard 38 micro and nano influencers, people with only a few hundred or thousand followers, who posted content regularly on their social media accounts over a six-week period. Influencers generated their own content such as photos, videos, surveys, memes, gifs, etc. that was unique to their style, tone, and language of preference to communicate to their followers about these services at the MSI facility. The campaign reached 1,549,829 people on social media. 24% of this population was aged 24 years and below while, 68.1% of the audience was female. During the campaign, most of the audience was reached on Facebook (39%) with Twitter and Instagram contributing 31% and 30% of the total reach respectively. At the baseline, the facility was conducting an average of 19 HIV tests per month, and after the 6-week campaign that increased to 53 tests in a single month,

an increase of 2.8 times. Cervical cancer screenings increased from an average 5 screenings per month to 10 screenings after the campaign. The project revealed that social media-based behavior change campaigns using micro and nano influencers can be a successful strategy to drive youth to HIV and SRH services. It also showed that this is a useful medium for conducting feedback surveys which revealed that young people wanted more information on where to seek services, cost of the services, and needed reassurance on confidentiality. Therefore, we believe that influencers provide a valuable service in their ability to collect rapid feedback on the barriers to service uptake and can utilize these findings to craft targeted and effective communication campaigns addressing these challenges within their communities, in real time.

44. Utilization of over the counter medication and Herbal Remedies during pregnancy among women attending postnatal clinics: a cross-sectional study in Mbeya City, Tanzania.

Corresponding Author: Dr Elimina Siyame

Background: Over-the-counter (OTC) medications are widely used to treat ailments during pregnancy. It is a genuine principle to avoid drug exposure during the first trimester when organo-genesis takes place when harmful exposure may lead to structural abnormalities and other adverse effects. In recent years, an escalating inclination towards use of OTC medication has been observed owing to drugs accessible in pharmacies and retail outlets. Also, literature show that several pregnant women take herbal medicines in their period of pregnancy which resulted into poor maternal and fetal outcome such as obstructed labor and fetal distress. There are limited published studies done in Tanzania on OTC medicine and herbs use during pregnancy. This study assessed the utilization of OTC and herbal medicines during pregnancy among women attending postnatal clinics in Mbeya.

Methods: This was a cross sectional study; post-delivery women aging 18 years and above who attended post-natal clinics from June to December 2019 in Mbeya region were interviewed. A semi structure questionnaire in Swahili language was used to collect information on utilization of OTC and herbal remedies.

Results: A total of 382 postnatal women responded to the questionnaires in ten postnatal clinics in Mbeya region. Use of OTC medication, herb medicines or both during pregnancy was common in 382(100%) women. Proportion of users were 72.8%, 27.2% and 15.4% for OTC, herbal medicine and both medicine users respectively. The use of medicines was more in the first trimester whereby common source of herbal medicine and OTC was the traditional herbalist and retail pharmacy respectively. Majority (98%) of women used the medicines orally and the reported reasons for use included relief of nausea and vomiting, low cost, traditional use and easy accessibility of medicines

Conclusion: The utilization of OTC and herbal remedies during pregnancy was found to be common in pregnant women in Mbeya. This provides area for further research to assess its effect on the pregnancy outcome.

45. Views of Secondary School Students on Adolescent Friendly Health Services in Level 2 Facilities in Mombasa County, Kenya

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Background: WHO states that adolescent and youth friendly health services are an important intervention targeting young persons in the hopes of achieving sustainable development goal three on good health and well-being. Despite adoption of adolescent friendly health services in government facilities in Kenya, incidences of teenage pregnancies and HIV infections among adolescents aged 15-19 years continue to rise. Understanding the adolescent views on the health services offered at facilities is important in developing services that are responsive to the needs of the adolescents.

Methods: A survey was conducted in October 2019 with 310 secondary school going students. Researchers administered questionnaire; students selected randomly. Additionally, four public primary care facilities were assessed using observational checklist. Key Informant Interviews were carried out on the heads of facilities. Relationships between variables were assessed.

Results: Of all the respondents, 42% (n= 310) reported the services to be friendly. Availability of appropriate staff with good communication skills influenced friendliness of services with both p- values of <0.001 respectively. Media (radio, newspapers) and static advertisements significantly influenced AYFHS p – values 0.017 and 0.004 respectively. Less than a half of those who reported friendly services mentioned being aware of services offered in other settings (43.2% (n=32) drop- in centers, 43.7% (n=44) community outreach and 39.2% (n=65) school health programs). Accessing facility by use of vehicle and walking on foot had significant influence on AYFHS, p- values of 0.001 and 0.003 respectively.

Conclusion: Generally, the services are rated unfriendly. These study findings are useful in quality improvement of adolescent health services.

Recommendations: Awareness and provision of AYFHS in other settings to be enhanced Training of staff in AFHS improve road network access to all health facilities Public private partnership to increase access Regular assessment of quality-of-care
Key words Adolescent; Adolescent friendly services; Adolescent health; Kenya.

Key words: Adolescent; Adolescent friendly services; Adolescent health; Kenya

46. Factors Associated with Health Seeking Behavior for Reproductive Tract Infections among Young Street Females in Eldoret, Kenya.

Corresponding Author: Maritim Violet

Reproductive tract infections (RTIs), among young women is a public health concern, especially in developing countries like Kenya. When a reproductive tract infection occurs, urgent treatment should be done to avoid short and long term consequences. However, few studies have evaluated factors associated with RTIs and healthcare seeking behaviours especially, among young street women in low and middle-income countries. This study aimed at determining the factors associated with healthcare seeking behavior for RTI infections among young street females in Eldoret town in Kenya. Descriptive cross-sectional study design was used. The study participants were young street females aged between 10-24 years. The independent variables were age, education, occupation, marital status, and healthcare associated factors such as distance to the facility, and health care perspectives on reproductive health were assessed. Informed consent was obtained from participants while assent was obtained from guardians for minors and persons in charge of street families. A total of 77 young street females were enrolled. Those aged ≤ 15 years were 10 (13%) while those aged ≥ 20 years were 48 (62.3%). The study established that participants aged between 16 to 19 years were less likely to report having had an RTI compared to those aged between 20 to 24 years (95% CI: 0.216 (0.070-0.671), $p=0.006$). Majority had heard of RTI (62, 80.5%). Out of the fifty respondents (65%) who reported having ever experienced RTI in their lifetime, 36 (72%) sought treatment for the illness with 46 respondents (94%) seeking treatment after two days post-onset of symptoms. Additionally, the main first points of seeking treatment were pharmacies (21, 43%) and health facilities (25, 51%). The study findings show there's a high burden of RTIs among young street females in Eldoret.

47. Where and how do young people like to get their Sexual and Reproductive Health (SRH) information? Experiences from students in Higher Learning Institutions in Mbeya, Tanzania.

Corresponding Author: Ruby Doryn Mcharo

Co-authors; Philippe Mayaud, Sia Emmanuelli Msuya

Background: Sexual and reproductive health (SRH) among young adults in low- and middle-income countries (LMIC) is still a major public health challenge. Early school-based sexuality education programs and sexual health information sharing between teachers, parents and young people have been considered protective against the sexual health risks to which young people are exposed. There is, however, limited information on the preferred choices of "where", "how" and "from whom" young people would like to receive SRH information. We aimed to describe the experience and preferences of young people regarding their SRH education and learning and in particular communication with their parents/guardians.

Methods: We conducted a cross-sectional study among randomly selected students aged 18-24y attending Higher Learning Institutions (HLIs) in Mbeya, Tanzania. We used a self-administered questionnaire to collect information on SRH education received, ability to discuss SRH matters with a parent/guardian and SRH information gaps encountered during their early sexual experience.

Results: We enrolled 504 students from 5 HLIs, of whom 446 (88.5%) reported to be sexually active, with mean age at sexual debut of 18.4y (SD 2.2). About 61% (307/504) of the participants found it difficult to discuss or did not discuss SRH matters with their parent/guardian while growing up. Learning about SRH matters was reported from peers (30.2%) and teacher-led school curriculum (22.7%). There was a strong gender-biased preference on SRH matters' discussions, female and male participants preferred discussions with adults of their respective sex. Peers (18.2%), media (16.2%) and schools (14.2%) were described as the preferred sources of SRH information. On recalling their first sexual experience, sexually-initiated participants felt they needed to know more about sexual feelings, emotions and relationships (28.8%), safer sex (13.5%), how to be able to say 'No' (10.7%) and how to use a condom correctly (10.2%).

Conclusion: Young people have a gender preference when it comes to learning about SRH matters from their parents; however, such conversations seldom occur. Community health education should focus on building skills of parents on parent-child communication on SRH matters so as to empower them to confidently initiate and convey accurate SRH information. Comprehensive SRH education and skills building need to be strengthened in the current school SRH curriculum in order to meet the demand and needs of students and increase the competence of teachers.

Subtheme 2: Infectious Diseases

48. “By only considering the end product that means our participation has always been in vain” Defining benefits in HIV vaccine trials in Tanzania

Corresponding Author: Godwin Pancras Kalugira

Background: Debates about what constitutes benefits in human research continue to be contested. However, these debates continue to be less informed due lack of empirical evidence from the global south. Therefore, the study aimed at exploring what constitutes benefits in HIV vaccine trials (completed and on-going trials) in Tanzania and examine inherent ethical implications.

Methodology: Following the constructivism paradigm, a phenomenological study design was deployed and data was collected using semi-structured interview guides. A total of 10 respondents comprising experienced researchers and research ethics committee members were purposively selected from regulatory and research institutions in Tanzania. Collected data were analyzed by thematic analysis aided by computer software: MAXQDA version 20.4.0.

Results: Two themes were identified during the analysis: Capacity building related benefits (individual, community, institutional, research regulatory organs) and non-capacity building related benefits (collaborations, health-related, carrier development, and employment).

Conclusion: As the struggle for a consumable end product of HIV vaccine trials continues, other benefits that have accrued from such studies are not to be blindsided. And for developing countries like Tanzania, it is reasonable for benefits to be defined in the light of capacity building.

49. A Clinicopathological Spectrum of Liver Disease among HIV Infected Individuals in Mwanza Region, Tanzania

Corresponding Authors: Rachel Maseke

Co-authors: Dr. Patrick Ngoya, Dr. Paulina Manyiri, Prof. Samuel Kalluvya, Prof. Peter Rambau

Background & Aims: People living with human immunodeficiency virus (PLWHIV) have a higher prevalence of liver disease, accounting for 14% - 18% of all deaths in this population. There is a shift in the spectrum of liver diseases among HIV patients after widespread use of anti-retroviral therapy (ART) from acquired immune deficiency Syndrome (AIDS) – related infectious causes to more chronic conditions such as metabolic diseases and malignancy. There is limited to no data on this pathological spectrum in our setting and most conditions are managed empirically. This study aimed at determining these patterns among HIV patients living in Mwanza.

Approach & Results: This was a cross sectional study conducted in Mwanza Tanzania. We enrolled 86 PLWHIV, with suspected liver disease and eligible for liver biopsy. Baseline and clinical information, laboratory and imaging results were recorded. A percutaneous liver biopsy was taken, and biopsy samples were processed, stained, interpreted, and graded for fibrosis. Histological findings were linked to the patient’s clinical, and laboratory data for diagnosis and management. The prevalence of histological abnormalities was 97%, with 16/86 (18.6%) having multiple patterns. The most common pattern was chronic hepatitis 42/86 (48.9%), also having the highest prevalence of fibrosis (50%). Other patterns included malignancy, 21/86 (24.4%) with 70.6% having hepatocellular carcinoma (HCC). Steatosis and steatohepatitis 15/86 (17.4%) with majority 66.6% having steatohepatitis. Granulomatous inflammation 12/86 (13.9%) with 83.3% having tuberculous granuloma. Cholestatic liver disease 11/86 (11.6%), and nodular regenerative hyperplasia (NRH) 1/86 (1.16%). Fibrosis and cirrhosis were present among 25/86 (29.1%) and 4/86 (4.7%) respectively.

Conclusion: The various patterns and the high prevalence of fibrosis revealed in this study inform on the risk of mortality and morbidity among HIV patients with liver disease. It is vital for health systems to focus on prevention, early diagnosis through vaccinations, screening techniques and specific management guidelines for liver disease among HIV infected individuals.

50. Accelerated TB case finding through health system strengthening: A case of St Anthony Kibabii, Bungoma County

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Co-authors: Muga S¹, Lutta M¹, Okado D¹, Macharia M¹, Wafula E², Lodi P²

Affiliation: Komesha TB program, Bungoma County TB Program

Background: The Kenya TB prevalence survey of 2016 revealed that upto 40% of patients with TB who visit health facilities are missed contributing to ill health further aggravating transmission. Thus, the national TB program recommends active TB case finding as a strategy to find missing TB cases in the health facilities; to promptly diagnose and treat TB in patients.

Nevertheless, TB cases are missed in many facilities including Kibabii Health Centre in Bungoma County, in Kenya. We sought to optimize TB case finding through active case finding at all the departments of our private facility.

Method: A desk review of TB case finding reports between October 2019 to June 2020 was done in September 2020. Komesha TB in collaboration with the TB coordinator established a Quality Improvement Team through which a root cause analysis and change concepts were crafted into an improvement work aimed at improving TB case finding in October 2020. Staff were trained on integrated lung health management, TB diagnosis and on ACF in November and December 2020. An ACF committee was tasked with monitoring TB services in all the departments. Post training follow up between January and March 2021 focused on recording and reporting. Three community link persons were engaged to promote awareness, mobilization and advocacy for TB services.

Result: Period October 2019 and June 2020, had a workload of 5,728 of which 4 cases were presumed with TB and the 4 were ultimately diagnosed with the disease compared to October 2020 and June 2021 with a workload of 9,546 of which 82 were presumptive TB, and 17 TB cases being diagnosed.

Conclusion/Recommendation: Through a health systems improvement approach it has been possible to reduce missed TB opportunities with active case finding.

51. Prevalence and comorbidity of depression and alcohol use disorder among youth in Rwanda

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Co-authors: Deusdedit Tusubira, Jean-Pierre Munyampundu, Casim Umba Tolo, Claude M. Muvunyi and Patrick Engeu Ogwang

Background: Depression and alcohol use disorders are psychiatric conditions that constitute major public health problem among youth in Rwanda. There are inconsistent findings regarding alcohol and depression comorbidity as well as risk factors and characteristic of that phenomenon in Rwanda. Our study investigated the prevalence, comorbidity of depression and alcohol use disorder among youth as well as its risk factors.

Objective: This study aimed at investigation of the prevalence, the comorbidity of depression and alcohol use disorder as well as risk factors among youth in Rwanda

Methods: A cross-sectional study design was used to survey data from Rwanda Mental Health Survey (RMHS) 2018. The sample of this study were participants aged between 14 to 30 years. The Mini-International Neuropsychiatric Interview (M.I.N.I) version 7.0.2 for DSM-5. The M.I.N.I was used in diagnosis of depression and alcohol use disorder.

Results: The prevalence of depression among youth is 16.76% while the prevalence of alcohol use disorder is 4.09%. The comorbidity of depression and alcohol use disorder was calculated and found to be 23.14%. The multivariate analysis, sex of youth, age, residence, education level and religion were all associated with the comorbidity of both conditions.

Conclusion: There is a significant prevalence of alcohol use disorder among depressed youth with a positive association with risk factors related to socio-demographic characteristics. This calls for a strong understanding of both policy makers and clinicians in planning and management of both psychiatric conditions.

Keywords: depression, alcohol use disorder, comorbidity, youth

52. Analysis of local spatial-temporal distribution of malaria incidences in South Sudan with dynamic transmission from 2011-2018: Routine Data report

Corresponding Authors: Amany Jacob Kasio Iboyi

Abstract: Diverse social dimensions in settlement, climatic and environmental circumstances influenced the temporal and spatial distribution of malaria vector-borne parasites and infection. Aim was to analyzed spatiotemporal heterogeneity in malaria transmission and distribution in South Sudan to synergies on-going malaria control program interventions and aid informed decision-making.

Methods: The Confirmed and clinically diagnosed malaria cases with RDTs and Microscopy were extracted from the MOH, DHIS1.4 databases to check epidemiological trends, correlation, climatic factors, spatial auto-correlation Moran's I and with purely spatial, temporal and space-time scan statistics, to ascertain significant and most likely hotspot cluster's patterns.

Results: A total of 12,290,614 malaria cases were reported in 8 years' periods, average incidence was 3.33/10,000 persons. Incidence peaked to 3.97/10,000 in 2014, decline to 2.81/10,000 in 2015. Age distributions were; 56.33% in U-5, & 43.67% in ≥ 5 years, gender 56.38% in females, and 43.62% in males. By residents; 65% in rural, 45% urban, local autocorrelation, purely temporal and spatial scan-statistics indicated, most likely clusters and hotspots localized in South. Rainfall and humidity ($\rho = 0.82$; $P < 0.001$) & ($\rho = 0.58$, $P < 0.048$), temperature ($\rho = -0.301$ $P < 0.341$).

Conclusion: Malaria incidences were clustered in Southern counties. Trends showed a dynamic transmission, peaking from June to November; incidences perfectly correlated with meteorological. Early warning and response system need strengthening to monitor occurrences.

Keywords: Temporal-Spatial, Malaria, Distribution, incidence, South Sudan, routine data, Transmission

53. Antimicrobial Resistance profiles of bacterial pathogens isolated from Cancer patients at Jaramogi Oginga Odinga Referral Hospital Oncology Clinic.

Corresponding Author: Obanda Benear

Co-authors: Sally Loronyokie, Hannah Njeri, Abdi Mohammed, Richard Korir, Christine Bii

Background: According to IARC (2018), an estimated 18.1 million new cancer cases and 9.1 million deaths are reported worldwide annually. The exacerbated morbidity and mortality associated with cancer is attributed to chemotherapy complications and opportunistic infections. The management of cancer patients is constantly changing with oncological dynamics and the emergence of resistant opportunistic pathogens.

Objective: To determine the spectrum and antimicrobial resistance patterns among cancer patients attending Jaramogi Oginga Odinga Teaching and Referral Hospital-Oncology Clinic.

METHODOLOGY: A total of 71 cancer patients were recruited from JOOTRH-KISUMU. Clinical evaluation was done by the resident oncologist and infections flagged samples were collected for examination at KEMRI/CMR/Myology Laboratories using standard procedures. Samples were subjected to microscopy, culture and biochemical tests. The antimicrobial susceptibility testing (AST) done according to CLSI protocols. Socio-demographic data was captured using structured questionnaire.

Results: A total of 71 samples were collected from the study participants consisting of swabs (throat, rectal, pus, urethral and higher vaginal), skin scraping, blood, urine and stool. Gram negative bacterial pathogens isolated included; *E. coli* (65.79%), *Klebsiella* spp. (21.05%), and *Pseudomonas* spp. and *Citrobacter* spp. (5.26%) each and *Proteus* spp. (2.63%). The gram-positive pathogens were; *Staphylococcus aureus* (69.23%), other *Staphylococcus* spp. (23.08%) and *Streptococcus* spp. (7.7%). The pathogens exhibited polymicrobial characteristics with different antibiotic susceptibility patterns.

The *Staphylococcus aureus* antibiotic resistance was; Ciprofloxacin (15.79%), Erythromycin (52.63%), Gentamycin (5.26%), Chloramphenicol (10.53%), Kanamycin (26.32%), ofloxacin (42.11%), cefpodoxime (31.58%), Azithromycin (47.37%).

The gram-negative antibiotic resistance was; ceftazidime (36.85%), ceftriaxone (47.37%), Ciprofloxacin (36.85%), Ampicillin (92.11%), Sulfamethoxazole (81.58%) Gentamycin (31.58%), Aztreonam (63.16%), Cefotaxime (50%), Amoxicillin/clavulanic acid (21.05%), Nalidixic acid (52.63%), Erythromycin (76.32%), Chloramphenicol (15.79%) Tetracycline (71.05%) Cefuroxime-sodium (55.26%). The ESBLs producers were 42.11%.

Conclusion: Drug resistant bacterial pathogens are significant cause of morbidity in cancer patients. This calls for diagnosis, drug resistance surveillance and infection control as an essential component of cancer management.

54. Antimicrobial Resistance Profiles, Virulence Genes, and Genetic Diversity of Thermophilic *Campylobacter* Species Isolated From a Layer Poultry Farm in Korea

Corresponding Authors: Noel Gahamanyi

Description: Thermophilic *Campylobacter* species are among the major etiologies of gastroenteritis. This study aimed at assessing the antimicrobial resistance (AMR) profiles, virulence genes, and genetic diversity of thermophilic *Campylobacter* species isolated from two layer poultry farms in South Korea. Chicken feces (153) were collected from two farms and *Campylobacter* species were isolated by culture and confirmed by PCR and sequencing. Antimicrobial susceptibility testing for six antimicrobials [ciprofloxacin (CIP), nalidixic acid (NAL), sitafloxacin (SIT), erythromycin (ERY), tetracycline (TET), and gentamicin (GEN)] was performed by broth microdilution. Three AMR and nine virulence genes were screened by PCR. Genotyping was performed by *flaA*-restriction fragment length polymorphism (RFLP) and multilocus sequence typing (MLST). Of the 153 samples, *Campylobacter* spp. were detected in 55 (35.9%), with *Campylobacter jejuni* and *Campylobacter coli* being 49 (89.1%) and six (10.9%), respectively. No *Campylobacter* was detected in the second farm. High-level resistance (MIC > 32 µg/mL) was observed for CIP, NAL, and TET. Point mutation (C257T) in *gyrA* gene was confirmed by sequencing, while *tet(O)* gene was similar to sequences in GenBank. All isolates possessed five virulence genes (*cdtB*, *cstII*, *flaA*, *cadF*, and *dnaJ*) while the rates for other genes (*csrA*, *ciaB*, and *pldA*) ranged between 33.3 and 95.9%. The *flaA*-RFLP yielded 26 *flaA* types while the MLST showed 10 sequence types (STs) for *C. jejuni* and three STs for *C. coli*, with CC-607 (STs 3611) and CC-460 (ST-460) being predominant. The findings of this study highlight the increased resistance to quinolones and TET, the virulence potential, and diverse genotypes among *Campylobacter* strains isolated from the layer poultry farm.

55. Antimycobacterial activity of *Solanum torvum* (Solanaceae) crude extracts

Corresponding Authors: Joseph Mwanzia Nguta

Background: Tuberculosis (TB) caused by *Mycobacterium tuberculosis* complex remains a leading cause of morbidity and mortality worldwide. The zoonotic infectious condition represents a never-ending challenge towards which drug discovery efforts are needed. The current study was designed to evaluate the *in vitro* antimycobacterial activity of ethanolic extracts from roots, stem bark, leaves and unripe fruits derived from *Solanum torvum*, a shrub traditionally used against respiratory tract illnesses, including tuberculosis.

Methods: The phenotypic colorimetric micro plate alamar blue assay (MABA) was used to study the antimycobacterial activity of the ethanolic extracts against six mycobacterial strains. Each experiment was run in triplicate. Data generated was analyzed using descriptive statistics to obtain mean minimum inhibitory concentration values.

Results: The roots, stem bark, leaves and unripe fruits exhibited minimum inhibitory concentration values of 1.250 mg/mL, 0.078 mg/mL, 1.250 mg/mL and 0.625 mg/mL against the pathogenic mycobacterial strain, *M. tuberculosis* H37Rv (ATCC 27294) respectively.

Conclusions: In conclusion, *Solanum torvum* stem bark has demonstrated moderate activity against the pathogenic *Mycobacterium tuberculosis* strain. This observation validates the ethno pharmacological use of the plant species against tuberculosis. Further studies are required to isolate, elucidate the structure and characterize the antimycobacterial compounds responsible for the observed activity. These will potentially contribute towards bioprospecting for a new class of ligands with activity against sensitive and drug resistant strains of *M. tuberculosis*.

Key words: Tuberculosis; medicinal plants; *Mycobacterium tuberculosis*; *Solanum torvum*; crude extracts; natural products.

56. Bacterial cell penetrability and Hemotoxicity of peptides associated with antibacterial activity in African Catfish, *Claris gariepinus* (Burchell, 1822)

Corresponding Author: Hedmon Okella

Description: Antimicrobial peptides (AMPs) are highly associated with the anti-pathogenic activity. They are regarded as potential alternatives to traditional antibiotics or chemicals. However, the bacterial cell membrane disruption potentials, as well as the haemo-compatibility such peptides from African catfish (*Claris gariepinus*) skin mucus, are scarcely known. This study presents cell membrane destruction as well as hemotoxicity of such peptides on mammalian blood cells. Innate peptides were extracted in 10% acetic acid and ultra-filtered using 5kDa molecular cut-off membrane prior to C₁₈ Solid Phase Extraction (SPE) purification. The antimicrobial activity checks on *Staphylococcus aureus* and *Escherichia coli* using Agar well diffusion method. Further, electric conductivity and alkaline phosphatase assays were utilized to study antibacterial mechanism. Fresh Rabbit blood cells were then utilized for *in vitro* hemolytic assay. The peptide extracts were found to be active on both *E.coli* and *S.aureus* (Zone of Inhibition: 15.00±0.58 and 8.67±0.33 mm respectively), with ability to damage the bacterial cell envelope causing significant leakage in periplasmic Alkaline phosphatase enzyme and cytoplasmic electrolytes. No significant hemolysis was observed on the Fresh Rabbit blood cells even at the highest extract concentration of 100 µg/mL (3.63%, $p < 0.05$). The finding of this study points out that skin mucus of *C. gariepinus* are potential source of antimicrobial candidates, however, further studies are still needed especially to identify the peptides responsible for this observed activity.

57. Best practice on improving case finding at the health facility: a case of Helmi Jonas Health Centre.

Corresponding Author: Steve Andrew

Description: Tuberculosis (TB) remains a global threat to public health and is the leading cause of death by a single infectious agent with 1.6 million deaths globally in 2017. The TB prevalence survey of 2016 revealed that 40% of patients with TB are missed at the community and at health facilities, patients with symptoms that suggest TB visit a health facility three times before a diagnosis is made, contributing to poor health of the persons affected and to the onward transmission of tuberculosis in the community. Finding all people with TB disease and successfully treating them is therefore an important priority for the country. The aim of this study is to demonstrate how to improve TB case finding at health facilities. Helmi Jonas is a level III faith-based health facility located in Alego sub-county of Siaya County serving a catchment population of 7543 people, services at the facility include outpatient, laboratory, ward, comprehensive care clinic and TB clinic

Method: A desk review of TB case finding reports between January to December 2019 was done in January 2020, revealing sub optimal case finding for TB against set targets for the facility. TB champion, a lay person was engaged to compliment clinical team in TB case finding at the outpatient department by identifying patients presenting with cough and fast tracking them for review by clinicians, community health volunteers conducted household screening, HIV counselors screened patients for symptoms that suggest TB, clinicians took more time during clinical encounter to assess patients for symptoms that suggest TB. Patients with symptoms that suggest TB were escorted by TB champion to the laboratory to ensure complete linkage.

Leads for hospital departments met every month to review progress on TB screening, presumption of TB, lab access for patients presumed with TB and initiation of medication for patients confirmed with TB.

Result: Performance for TB case finding improved from 13 in January to December 2019, compared to 40 for the period January to December 2020, an improvement of 308%. Screening rates and documentation of TB screening in presumptive registers improved, all the presumed TB patients accessed laboratory services.

Conclusion: TB case finding can be greatly improved through team work at the facility and community interventions and through tracking of performance to align strategies to gaps identified.

58. Correlation of myeloperoxidase, neopterin and lipopolysaccharide binding protein as markers of environmental enteropathy between HIV infected and non-infected adults in Mwanza, Tanzania

Corresponding Author: Belinda V. Kweka

Description: Environmental enteropathy, Lipopolysaccharide binding protein, Myeloperoxidase, Neopterin and HIV infection

Background: Environmental enteropathy (EE) is associated with malnutrition in children and for HIV-infected individuals, EE relate with HIV progression, poor antiretroviral therapy (ART) response and non-communicable diseases.

Despite its importance, EE diagnosis is still a challenge. Small intestinal biopsy is a gold standard test for EE but in addition to being invasive it has a lot of challenges. Plasma (e.g., lipopolysaccharide binding protein (LBP)) and fecal (e.g., Myeloperoxidase (MPO) and neopterin (NEO)) biomarkers have emerged as important diagnostic tools but none of them is well validated for diagnosing EE.

To increase sensitivity, investigators have been using a combination of many biomarkers to diagnose EE hence increasing burden and cost. This study determined the correlation between LBP, MPO and NEO biomarkers so as to reduce a burden of using many biomarkers for diagnosing EE.

Methods: This study was cross-sectional, embedded in an already ongoing study REEHAD, conducted between May and August 2021 at National Institute for Medical Research, Mwanza, Tanzania. Data used for this study were recruited from REEHAD study except data for LBP, MPO NEO which were additionally collected using ELISA technique. Data was managed and analyzed in STATA.

Results: This study involved 738 HIV-negative and positive adults, their mean age was 42.3 (SD 11.4), majority 423 (57.3%) were females and 422 (57.2%) were HIV-positive on ART. MPO and NEO showed marginal positive correlation among HIV-negative participants ($r=0.20$, $P=0.08$), LBP and MPO & LBP and NEO showed no correlation. After stratifying by sex and age; significant correlation was observed between MPO and NEO in HIV-negative females ($r=0.28$, $P=0.04$), LBP and NEO in HIV-positive participants within the 31-40 age group ($r=0.45$, $P=0.01$) and between MPO and NEO in HIV-negative participants within the 31-40 age group ($r=0.51$, $P=0.004$).

Conclusion: LBP, MPO and NEO could be the adequate tests for EE but their correlation is modified by sex, age and HIV status. There is a need of developing new biomarkers that are not influenced by age, sex and HIV status.

59. Ethno medical knowledge and traditional use of *Aristolochia bracteolata* Lam. for malaria among local communities in Jubek State of South Sudan: A cross-sectional survey

Corresponding Authors: Lina S. Mathew

Ethnopharmacological relevance: The recognized challenges to access conventional antimalarial medicines could have contributed to the extensive use of *Aristolochia bracteolata* Lam. (Aristolochiaceae) to manage malaria in South Sudan traditionally. However, the use and acquired experiences are not well documented.

Aim of the study: This study aimed to document the traditional use of *A. bracteolata* for malaria treatment and experiences among the local communities in Jubek State of South Sudan.

Methods: We performed a cross-sectional study in four counties in Jubek State and interviewed 396 community members, including traditional healers, using a semi-structured questionnaire. Four focused group discussions (FGDs) were also conducted using the interviewer guide. Data were summarized and presented as proportions. Qualitative data were analyzed using a thematic content approach. The major themes that emerged were discussed. The Pearson Chi-Square test at $\alpha = 0.05$ to test the study's significant differences in responses. The statistical package for social sciences version 21 software was used for data analysis.

Results: Women accounted for 208 (52.5%) of participants, with the majority 321 (81.1%) were between 18 and 45 years. Interestingly, most 312 (78.8%) had formal education. Moreover, about 208 (52.5%) participants collect the plant in their vicinity, where leaves were the most commonly used part 277 (46.4%), followed by the roots, seeds, and stems at 245 (41.0%), 71 (11.9%), and 4 (0.7%), respectively. Furthermore, about 63 (15.9%) of the participants experienced side effects, including

early abortions, heartburns, sweating, and stomach discomforts. Conversely, a total of 387 (96.0%) reported getting cured of malaria.

Conclusion: The documented medicinal plant's therapeutic uses provided critical information on the traditional use of *A. bracteolata* by the community in Jubek state of South Sudan to treat malaria. Although most users reported getting cured of malaria, a notable proportion of them experienced side effects, including early-stage abortion and stomach discomforts. Thus, the use of *A. bracteolata* preparations, particularly in pregnant women, should be avoided. Finally, further studies are needed to devise a strategy to neutralize the toxic compounds and create community awareness on best practices to minimize side effects.

60. Evaluating two new oxazolidinones for tuberculosis treatment in the PanACEA-SUDOCU and -DECODE trials

Corresponding Author: Christina Manyama

Co-authors: Lilian Tina Minja, Francis Mhimbira, Stella Mpagama, Nyanda E. Ntinginya, Norbert Heinrich

Background: Tuberculosis (TB) is one of the main causes of morbidity and mortality worldwide, and increasing drug resistance requires new treatment options. Linezolid, an oxazolidinone, is an effective drug recommended for resistant TB, but a high risk of hematotoxicity and neurotoxicity limits its use. Two novel oxazolidinones, expected to have better safety profiles, are under development: sutezolid (Sequella) and delpazolid (LegoChem Biosciences). Dose-finding for oxazolidinones for TB cannot be done in the 14-day monotherapy early bactericidal activity study design, since the main toxicities occur only after 14 days of treatment. Instead, a trial design needs to be chosen that permits longer exposure to oxazolidinones through combination therapy with established anti-tuberculosis drugs.

Objective: PanACEA have designed two trials with the aim to establish the exposure-response and exposure-toxicity relationship of sutezolid (SUDOCU), funded by EDCTP, and delpazolid (DECODE), sponsored by LegoChem Biosciences.

Methods: In each study, 75 adult patients in South Africa and Tanzania with newly diagnosed, drug sensitive pulmonary TB will be openly randomized to five experimental arms to receive bedaquiline–delamanid-moxifloxacin with different doses of sutezolid/delpazolid. Treatment duration in SUDOCU will be 12 weeks, followed by 3 months standard of care treatment. DECODE patients with good clinical and microbiological treatment response (SCC) will end treatment after 16 weeks, followed by a 36-week observation period to rule out relapse. Exposure-response and exposure-toxicity modeling will be used to enhance the precision of dose-finding.

Results: At time of submission, SUDOCU has started enrolling in Tanzania and South Africa. DECODE is planned to September 2021. We expect to have preliminary data on safety and efficacy to report during the 8th EAHC in November 2021.

Conclusion: The study findings are expected to contribute to the development of new drug regimens against TB, which are safer and shorter to increase compliance with treatment.

61. Evaluation of The Effectiveness of Albendazole therapy for Soil Transmitted Nematodes Infections in Children and associated WASH factors, Kakamega, Kenya.

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Introduction: Soil-Transmitted Nematodes (STN) are roundworms transmitted through faecally contaminated soil. Globally, major STNs include *Ascaris lumbricoides*, *Trichuris trichiura* and *Necator americanus* and *Ancylostoma duodenale*. School-age children are mostly affected by STN infections. STN cause malnutrition, intellectual retardation and cognitive deficits. The aim of the study was to determine the effectiveness of a single dose of albendazole (400 mg) against STNs. WASH factors associated with STN were assessed during the school visits.

Methods: Longitudinal study design was utilized. Children in selected public primary schools in Kakamega County, Kenya, were enrolled. Faecal specimens were processed by Kato Katz technique, examined microscopically for STN eggs. A structured checklist was used to assess WASH variables.

Results: A total of 731 children aged 4 to 18 years took part in the study (mean \pm standard deviation age of 9.7 ± 2.6 years). At baseline, the all STN prevalence was 44.0% (95% confidence interval 35.8–54.2%). The most observed STN was *A. lumbricoides* (43.5%). The baseline intensity of STN was 3,674 eggs per gram (epg). There was significant prevalence reduction of combined

STN prevalence to 2.3% (prevalence reduction (PR)=94.9%, P=0.001). STNs intensity was significantly reduced from 3674 egg to 59 egg (egg reduction rate (ERR)=98.4%, P=0.001). Prevalence of *T. trichiura* significantly reduced, 0.8% to 0.0% (PR=100%, P<0.001). Pupil latrine ratio was significantly associated with STN intensity (p=0.047). Improved water source was not significantly associated with both lower prevalence (p=0.350) or intensity (p=0.659). Hand-wash facility with water and soap did not significantly associate with lower prevalence (p=0.495).

Conclusion: The study demonstrated that albendazole is highly effective in the treatment of STN in children.

Key words. School-age Children, WASH factors, Soil Transmitted Nematodes infections, Albendazole

62. Exploring the situated rationalities of antibiotic dispensing practices among drug sellers in East Africa

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Co-authors: Mike Kesby, Stella Neema, HATUA Consortium

Description: In East Africa, antimicrobial resistance (AMR) is often associated with poor antibiotic stewardship. Robust regulatory frameworks exist but implementation and enforcement often lag behind legislation. Research suggests that drug sellers often dispense antibiotics without prescription and are therefore a critical group for intervention. This paper asks how drug sellers describe and account for their own behaviors, and how dispensing practices can be improved to ensure better antibiotic stewardship. The study was conducted in nine sites in Kenya, Tanzania and Uganda using mixed methods that included quantitative 'mystery client surveys' [n=1475 (Phase 1), n=984 (Phase 2)] and follow-up in-depth qualitative interviews with a subsample of sellers [n=106]. Qualitative analysis shows that drug sellers have an intimate understanding of antibiotic (mis)use among their customers, and acknowledge their own role in perpetuating poor stewardship, for example dispensing antibiotics without prescription. While some report confusion over correct antibiotic dispensing practices, others are informed but not motivated to act on their knowledge. The profit motive is present, but sellers also report strong motivation to serve their communities. The study highlights the relational nature of antibiotic provision, in which drug dispensing is the outcome of negotiation between seller and customer. Under prevailing conditions, sellers' propensity to dispense antibiotics without prescription is often 'situationally' and 'contextually' rational. Interventions to improve antibiotic stewardship require a sophisticated understanding of seller-customer interactions and the structural conditions to which both are responding. They need to target both sides of the dispensing transaction: customer demand needs to be depressed via efforts to encourage informed consumption; sellers need to be recognized as an integral part of the health provision landscape and motivated to supply antibiotics in ways that fulfill their expressed desire to provide good services to the public. Moreover, investment is needed across the healthcare landscape to reduce the impact of AMR.

63. Extended Spectrum B-Lactamases Producing Escherichia Coli, Klebsiella Pneumoniae and Enterobacter Spp. Colonizing Children with Human Immunodeficiency Virus, Sickle Cell Disease and Diabetes Mellitus in Mwanza City, Tanzania

Corresponding Author: Maria Mkuna Said

Background: Colonization with Extended Spectrum Beta-lactamases-Producing Enterobacteriaceae (ESBL-PE) is the major risk factor for the development of subsequent endogenous infections due these pathogens. The aim of this study was to determine the patterns and factors associated with ESBL-PE colonization among children with HIV infection (HIV), Diabetic Mellitus (DM) and Sickle Cell Disease (SCD) attending clinics at Bugando Medical Centre (BMC), Sekou Touré regional referral hospital (SRRH) and Baylor Children Hospital (BCH) in Mwanza, Tanzania

Methods: A cross section study was conducted among children with HIV (n = 236), DM (n =42) and SCD (n =126) between July and September 2021 in the city of Mwanza. Socio demographic and clinical data were collected using a structured questionnaire in Epicollector5. Rectal swabs/stool samples were collected and processed to detect ESBL-PE colonization following laboratory standard operating procedure (SOPs). Descriptive statistical analysis was conducted using STATA 13.0.

Results: The overall prevalence of ESBL-PE colonization was 23.26%. No significant difference in ESBL colonization among children with SCD (22.2%), DM (23.8%) and HIV (23.7%) was observed. *E. coli* were predominant isolate (81.6%). Significantly high resistance was observed to ampicillin, trimethoprim-sulfamethoxazole and tetracycline among Enterobacteriaceae isolated from HIV infected children. The commonest ESBL allele detected was *bla*_{CTX-M} 45/62(72.6%). Generally, parent lower education level was found to be associated with ESBL colonization among children with HIV infection (OR [95% CI], p value; 4.60[1.04-20] p=0.044).

Conclusion: A significant proportion of children with DM, HIV and SCD was colonized with ESBL-PE in the city of Mwanza with HIV infected children being more colonized by lactose fermenters Enterobacteriaceae resistant to ampicillin, trimethoprim-sulfamethoxazole and tetracycline. The *bla*_{CTX-M} allele was common detected gene. There is a need to collect more data regarding SXT prophylaxis and resistance to guide decision on these practices of providing SXT prophylaxis in HIV infected children especially in this time where we practice HIV test and treat.

64. Facility-based directly observed therapy (DOT) for tuberculosis during COVID-19: a community perspective**Corresponding Authors:** Rahab Mwaniki¹**Co-authors:** Waiswa Nkwanga², Robyn C. Waite³**Affiliations:** Kenya AIDS NGOS Consortium (KANCO), Kenya ACTION Global Health Partnership, Washington DC, USA, RESULTS Canada Montreal, Canada**Description:** Facility-based directly observed therapy (DOT) has been the standard for treating people with TB since the early 1990s. As the commitment to promote a people-centered model of care for TB grows, the use of facility-based DOT has been questioned as issues of freedom, privacy, and human rights have been raised. The disruptions caused by the COVID-19 pandemic and ensuing lockdown measures have fast-tracked the need to find alternative methods to provide treatment to people with TB. In this study, we present quantitative and qualitative findings from a global community-based survey on the challenges of administering facility-based DOT during a pandemic as well as potential alternatives. Our results found that decreased access to transportation, the fear of COVID-19, stigmatization due to overlapping symptoms, and punitive measures against quarantine violations have made it difficult for persons with TB to receive treatment at facilities, particularly in low-resource settings. Potential replacements included greater focus on community-based DOT, home delivery of treatment, multi-month dispensing, and video DOT strategies. Our study highlights the need for TB programs to re-evaluate their approach to providing treatment to people with TB, and that these changes must be made in consultation with people affected by TB and TB survivors to provide a true people-centered model of care.**Keywords:** Tuberculosis, COVID-19, directly observed therapy, human rights**65. Factors affecting uptake of HIV testing among sexual partners through index client modality among adults in Tanga region, Tanzania****Corresponding Authors:** Faraja Gabriel**Background:** There are an estimated 38 million people living with HIV globally. Tanzania is estimated to have 1.5 million people living with HIV, but only about 66% (990,000) knew their status by year 2018. Index client approach has proved to be one of the best methods in identifying new HIV cases.**Objective:** To determine factors affecting uptake of HIV testing among sexual partners through index client modality among adults in Tanga Region**Methodology:** A quantitative cross-sectional study was carried-out across 8 high volume CTCs in Tanga region. Simple random sampling technique was employed to obtain 435 participants (18-49 years) enrolled to CTC from January 2018 – August 2020. Data was collected using questionnaires and analyzed descriptively.**Results:** The study involved 435 adults aged 18-49 years [287 of which (66%) were females. 291 clients (67%) had mentioned ≤ 1 sexual partner and 144 clients (33%) recruited ≥ 2 sexual partners. 159 out of 287 contacts with unknown HIV status were reached and tested (55% testing coverage). Having multiple sexual partners (aOR = 23.04) and disclosure (aOR = 2.22) were significantly associated with increased odds of listing sexual partners. Leading challenges include wrong address (79%), long distance from health facilities (67%) and unreliable transport (61%). Community based providers had higher testing coverage (86%) than the rest of the facility-based providers (averaging 56% coverage).**Conclusion and recommendations:** Number of sexual partners and disclosure are the leading client factors associated with index testing uptake, while wrong address and lack of reliable/feasible transport are the major facility factors. To improve index testing services, it is therefore recommended that the program should deploy more community-based providers and invest in reliable transport for tracking index contacts for testing.**66. Financial and social consequences of TB in the Mbeya and Songwe regions in Tanzania****Corresponding Author:** Stella Kilima**Introduction:** Tuberculosis (TB) disease is one of the leading causes of death globally. According to WHO, TB infects approximately 10 million people globally of whom approximately 1.6 million annually succumb. Global TB reports indicate that the African continent is the most highly TB-burdened (Tapera et al., 2021).**Objective:** To assess the financial and social consequences of TB in the Mbeya and Songwe regions in Tanzania**Methods:** This qualitative study was conducted with a convenience sample of TB patients from a larger TB study in progress, their relatives, TB survivors, and health care providers. A total of 46 key informant interviews (KIIs) were conducted with participants aged 18 years and above. KIIs were conducted at private venues in Kiswahili local language. Participants were asked to consent to be interviewed telephonically and audio-recorded. Audio files were transcribed verbatim and translated into English. Data were analyzed using NVivo version 11

Results: We interviewed TB patients, (8 males and 4 females) TB survivors (8 males and 4 females) we also interview 4 TB patients relatives (3 females and 1 male) and 18 health care workers (12 females and 6 male) majority of patients were aged between 24- 45. A total of 09/12 patients declare facing financial and social consequences before and during treatment. Moreover, all health care workers 18/18 confirmed that the majority of TB patients faced economic challenges. This was because most of them started treatment late. Due to the late initiation of treatment and the severity of the disease, TB patients were unable to engage in any economic activities hence their life became very difficult, some were forced to borrow money, depend on their relatives, and postpone some family needs. Also, 8/12 TB survivors shared the same experience of economic hardship despite the completion of treatment.

Conclusion: TB care is free in Tanzania, however, the costs associated with it may compromise access to services.

67. Frequency of Sulfadoxine Pyrimethamine Resistance Associated Mutations in Plasmodium Falciparum Clinical Isolates From Kwale County, Kenya

Corresponding Authors: Winfred Mutwiri

Description: Malaria persists to be one of the world's complex and dynamic disease. Management of the disease remains a problem as a result of spread of parasites that are resistant to the currently available drugs. Due to the wide spread of resistance to Sulfadoxine Pyrimethamine (SP), the artemether-lumefantrine, a more effective and well-tolerated anti-malarial drug replaced SP as the first-line regimen in treatment of uncomplicated malaria in Kenya. However, despite reports of resistance, SP remains the suggested drug to treat and prevent malaria in expectant women and in children under five years. Two genes have been implicated in SP resistance; *P. falciparum* dihydrofolate reductase (*Pfdhfr*) and *P. falciparum* dihydropteroate synthase (*Pfdhps*). Therefore, this study sought to assess the presence of mutation in dihydrofolate reductase and dihydropteroate synthase genes a decade after SP was withdrawn as the first-line anti-malarial drug in Kenya. Smear-positive samples (N = 134) collected from 2013 cross-sectional study in infants managed at Msambweni District Hospital were evaluated for mutations in *dhfr* and *dhps*. The findings obtained were matched up with molecular data from infants in Western Kenya in a study carried out in 2003/05. In all the 134 samples, mutations at codons N51I, C59R, S108N had a high predominance at 80.6%, 72.4% and 93.3% respectively. The double mutant of *Pfdhps* A437G/K540E had an occurrence rate of 82.1% and 78.4% respectively. Compared to the molecular data of 2003/05 study, the *Pfdhfr* triple mutant (S108N/N51I/C59R) genotype decreased to 63.4% in 2013 up from 68%. However, this reduction was not significant (p=0.387). There was no significant change in the prevalence of *Pfdhps* double mutant (A437G/K540E) genotype (p=0.485). The percentage of isolates which had the *Pfdhps* A437G/K540E/*Pfdhfr* N51I/C59R/S108N quintuple mutant linked with SP-resistance did not change significantly over the two study periods under consideration (53.5% in 2003/05 versus 53.7% in 2013, p = 0.967). The high prevalence of SP resistance marker in coastal Kenya could be attributed to circulation and SP drugs being sold over the counter which has maintained a selection pressure for the mutations and fixation in the key mutations in the inhabitants. Also, the mutation could have a little effect on the fitness of fit of the parasite such that withdrawal of drug pressure did not offer any survival disadvantage hence the continued spread of resistant parasites. Further investigations to determine the linkage between SP drug resistance associated mutations and efficacy of IPTi-SP need to be done.

68. Genetic diversity of transmission blocking vaccine candidates Pfs25, 230 and 48/45 gene in malaria endemic, mesoendemic and epidemic regions of western Kenya

Corresponding Author: Kevin Omondi Ochwedo

Background: Transmission blocking vaccines (TBVs) are the renewed hope in complementing other malaria control strategies aimed at reducing incidents and mortality rates. Leading TBV candidates such as *Plasmodium falciparum* surface protein 25 (Pfs25), immunogenic domain I (D1) of Pfs230 and domain III (D3) of Pfs48/45 must overcome hurdles of antigenic alterations which may render them allele-specific or ineffective. We explored sequence variation among three genes from varied malaria transmission intensities sites in western Kenya and described drivers of the observed mutations.

Methods: Dry blood spot (DBS) samples were collected between 2018 and 2020 from febrile patients in health facilities within malaria-endemic (Homa Bay), mesoendemic (Chulaimbo) and epidemic (Kisii-highland) sites. Amplification and sequencing followed by genetic computations of the three genes were performed for a total of 220 samples.

Results: The three genes had low nucleotide diversity and a high conservation index. Variability in malaria transmission intensities at each study site and ongoing vector intervention influenced parasite genetics. As opposed to other sites, parasites from Homa Bay, had declining nucleotide diversity. Some identified variants were fixed, while others were novel and private at the respective study sites. Most mutations were within the immunodominant epitopes or the circumambient. The main drivers of these mutations were purifying and balancing selection, inbreeding and recombination. Domain III of the Pfs48/45 gene was genetically conserved and stable compared to the D1 of Pfs230 and Pfs25 genes.

Conclusion: Given the low index of genetic diversity observed, it is unlikely that the three TBV candidates will be bypassed by the problem of antigenic variations.

69. Geospatial distribution of drug access points, drivers and implications on antibiotic use or misuse in East Africa

Corresponding Authors: Dr Fernando Banitez

Background: Access to quality and safe medicines is a main pillar of the WHO medicines and health products strategic framework 2016-2030. The main regulated drug access points (DAPs) in East Africa are healthcare facility (HCF) associated pharmacies and standalone non-HCF pharmacies/drug shops. Abuse of these access routes can potentially lead to antimicrobial resistance. We investigated the geospatial distribution of DAPs and relationship with demographic, socioeconomic and medicines regulatory landscape in Kenya, Tanzania, and Uganda.

Methods: Using GPS-enabled EpiCollect App we recorded locations of DAPs in Uganda – Mbarara, Nakasongola and Nakapiripiriti; Tanzania – Mwanza, Mbeya and Kilimanjaro; Kenya – Nairobi metropolitan. The locations were validated by research assistants living in the area. DAPs were standardized to four categories: drug shops, pharmacy in non-clinical setting, pharmacy in clinical (HCF) setting and others. Urban area proportion was estimated based on a threshold of 1000 people/km² across East Africa. Association with socioeconomic factors (population density, proximity to healthcare facilities and road network) was estimated using a curated gridded population counts from WorldPop data for 2019. Compliance with policy was assessed using pharmacy/drug shop location policy in each country.

Findings: A total of 5020 DAPs were recorded across 7 study sites, Tanzania (1557), Uganda (985) and Kenya (2478). Drug shops were the most common DAPs in all study sites except Nairobi (Figure 1). The proportion of area determined as urban ranged from 2-6% and 46-99% in rural districts and municipalities/cities respectively (Table 1). Urban areas with high population density and dense road network were associated with high density of DAPs, 26 – 68 DAPs per km². The distance (spacing) between DAPs was 57-199 metres in urban areas and 503-696 in rural areas (Table 2). The spatial distribution of DAPs in urban area falls short of the 200-metre spacing policy in the three East African countries.

Conclusion: Urban areas have highest concentration of DAPs, potentially in breach of national spatial distribution policy for pharmacies and drug shops. This opens opportunity to investigate the link between DAP distribution and antibiotic use vis-à-vis antimicrobial resistance.

70. Health care providers practices in diagnosis and treatment of malaria in rural communities in Kisumu County, Kenya

Corresponding Authors: Wilfred

Description: Accurate diagnosis and early malaria treatment at the health facilities helps to reduce the burden of *Plasmodium falciparum* infection. However, cases of malaria misdiagnosis at the health facilities is a growing concern. Passive case detection was conducted in three rural hospitals in Kisumu County Kenya: two public hospitals and one private hospital. A cross-sectional study was done on febrile patients who exhibited malaria symptoms and their finger-prick blood smears taken for examination. The accuracy of microscopy reading was compared between the hospital technicians and independent microscopy and qPCR. Antimalarial treatment regimen of these patients was recorded and the presumptively treated with antimalarial and antibiotics re-examined for malaria parasites. Of the 936 febrile cases examined for clinical treatment, malaria slide positivity rate was 27.5% (257/936) with public hospitals slide positivity rate higher at 29.8% (N=624). Hospitalization level was higher in the private hospital among the slide positive patients at 40.8% (29/71) (P < 0.0001). Antimalarial treatment among the slide negative patients was higher in public hospitals at 14.6% and about 8.8% of slide positive patients missing out on antimalarial treatment. Hospital microscopy sensitivity and specificity standard with qPCR was at 38.3% and 91.2% and independent microscopy at 47.6% and 86.7% respectively. Of the 387 febrile cases misdiagnosis was at 19.9% (77/387) with about 10% of the slide negative patients were treated with antimalarial. Of the clinically diagnosed, about 64% were correctly treated with antimalarial and with overtreatment at 63.4%. The result of this study showed that the overall slide positivity rate in the three hospitals was 27.5% with about 25% discrepancy in slide reading and about 10% of the slide negative patients being treated with coartem. Misdiagnosis was higher in the private hospital than in the public hospitals. The discrepancies between clinical malaria diagnosis and treatment regimen at the health facilities in reference to the guidelines provided by the Ministry of Health calls for an urgent need for the government to strengthen capacity for clinicians and laboratory technicians to enhance malaria diagnosis and treatment at all health facilities.

71. High Burden of infections with schistosome and soil transmitted helminths among preschool children in Taita Taveta County, Kenya

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Description: With delayed treatment, schistosome and soil transmitted helminth (STH) infections in children could potentially lead to irreversible lifelong detrimental health effects. These infections are known to cause suboptimal growth and development in this critical phase of life. The present study sought to document the burden of schistosome and STH infections among children (< 5 years) residing in Taita Taveta County, Kenya. The study also evaluated the association between the infections and nutritional status of the children. A total of 132 children, 53.8% males, were enrolled in the survey. The prevalence of schistosomiasis was 22.0% (95% confidence interval (CI) 15.8% - 29.8%) with *S. haematobium* and *S. mansoni* infestations being detected in 18.9% (95% CI 13.2% - 26.5%) and 15.9% (95% CI 10.7% - 23.1%) of the children, respectively. The proportion of children who tested positive for STH infestations was 6.8% (95% CI 3.6% - 12.5%). Thirty-six children were diagnosed with at least one helminthic infection (27.3% (95% CI 20.4% - 35.4%)). Four children (16.0%) had heavy intensity *S. haematobium* infections. No heavy intensity infections were detected in children who were infected with STH and *S. mansoni*. Nutritional indices which were associated with schistosome infections included Stunting ((odds ratio (OR) 3.644 (95% CI 1.393 - 9.531), p=0.006) and being underweight (OR 12.698 (95% CI 3.107 - 51.900, p<0.001). Children who were anaemic had about three-fold higher odds of testing positive for schistosomiasis (OR 3.016 (95% CI: 1.288-7.059)), p=0.009). The study established that schistosome and STH infections are prevalent in children living in the study area hence presenting a potentially significant public health challenge. The children should be prioritized for interventions including being incorporated in the mass deworming programme which currently targets school age children.

72. HIV-1 Drug Resistant Mutations In Relation To Virologic Failure among Patients Attending Busia County Referral Hospital Kenya

Authors: Olipher Makwaga

Co-authors: David Hughes Mulama, John Muoma, Matilu Mwu

Description: Mutations are important by ensuring that the HIV-1 agent remains fit in the environment and evades drugs developed purposely to kill them. In Kenya, mutations conferring resistance to ARVs have been reported in previous studies. However, there is a paucity of information on whether all mutations that confer resistance to available drugs have been reported. Therefore, this study was sought to identify the current HIV-1 drug-resistant mutations attributable to virologic failure among adults on various ARV regimens. The samples were collected from March to June 2020. Analysis of viral loads and HIV-1 drug-resistant mutations through sequencing of the pol region of HIV-1 were done. Alignment of the cDNA sequences was done by Recall (beta version 3.05) software. HIV-1 resistant mutations were identified by Stanford University HIV drug resistance database. Most of the participants had viral loads of more than 1000 copies/ml during all the three visits. Out of 125 mutations identified, 83 mutations resulted in virologic failure. Out of 17 new mutations, 14 resulted in virologic failure and included NRTIs (L74I, L74V, T69D, V65R); NNRTIs (A98G, V179E, V179F, V179D, 179F); PIs (I54V³, F53L², L89T, G48A). Pearson's correlation of 0.311 and a p value of 0.028 signified the strong relationship between the mutations identified and viral loads. The study reveals new HIV-1 drug-resistant mutations have never been reported in Kenya as well as old and both resulted in virologic failure. This calls for frequent monitoring and profiling of mutations that will enable decision-making in the drugs and vaccine design and development.

73. Impact of parasite genomic dynamics as a result of drug pressure on the sensitivity of parasite isolates to currently used antimalarial drugs

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Background: Dihydroartemisinin-piperazine (DHA-PPQ) is the recommended alternative first-line antimalarial in Kenya. However, resistance to PPQ in Southeast Asia (SEA) threatens the continued use of DHA-PPQ since this resistance could also emerge in Kenya in a matter of time. In line with the policy on continued use of DHA-PPQ, it is imperative to establish piperazine susceptibility in Kenya using growth inhibition assay and genomic analyses.

Methods: Blood samples collected from individuals with naturally acquired *Plasmodium falciparum* presenting with uncomplicated malaria between 2008 and 2021 were tested for piperazine susceptibility using immediate *ex-vivo* and *in-vitro* piperazine survival assays (PSA). Drugs tested included; piperazine, dihydroartemisinin, lumefantrine, artemether, and chloroquine. Additionally, reference clones were analyzed for *in vitro* susceptibility using SYBR Green I method.

Furthermore, each isolate was assessed for piperazine resistance putative markers in targeted codons of *Pfprt*, *Pfmdr1*, *Pfpm2*, *Pfpm3*, *Pfdhfr*, *Pfdhps*, *Pfexo*, and *Pfkl3* genes using real-time PCR (qPCR) and Agena MassARRAY platform.

Results: Piperazine susceptibility during the study timeline varied significantly, displaying median IC₅₀ of 16.8 ng/ml, n=58 (IQR 10.8 to 23.1 ng/ml) in 2008 and 8.4 ng/ml, n=69 (IQR 6.4 to 21.3 ng/mL) in 2021, (p<0.05). A total of 40 clinical isolates showed a PSA median survival rate (interquartile range) of 0% (0-11.02%), n=40, at 95% CI. Eighty five percent of these isolates had PSA <10%, depicting sensitivity to PPQ. Six isolates had a PSA survival rate of >10%, consistent with the range of PPQ resistance parasites. Lumefantrine median IC₅₀s rose significantly between 2008; 11.0 ng/mL, n=54 (IQR 2.7 to 26.9 ng/mL) to 30.55 ng/mL, n=51 (IQR 3.2 to 47.7 ng/mL) in 2021, (p<0.05). In reciprocity, steady statistically significant decline in median IC₅₀ for chloroquine was observed, 7.9 ng/mL (IQR 3.9 to 15.8 ng/ml), n=36 and 4.6 ng/ml, n=62 (IQR 3.1 to 8.2 ng/ml) in 2008 and 2021 respectively, (p<0.05). A statistically significant positive association was observed between PPQ IC₅₀ and *Pfprt* K76T (p=0.0007), *Pfdhps* A437G (p=0.0167), and A613S (p=0.0043) respectively.

Conclusion: These findings show that Kenyan field isolates are sensitive to piperazine. This can be attributed to re-emergence of Chloroquine sensitive parasites in the region. The results on the putative markers of PPQ resistance provide baseline status for continuous monitoring of piperazine susceptibility as DHA-PPQ is widely embraced as alternative first-line treatment. Temporal trends in response of naturally acquired infection to current antimalarials underscore the paucity of drug resistance profile trends and warrant continued surveillance.

74. Implementation and Client preferences on HIV differentiated service delivery models at rural public health facilities in Uganda.

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Background: In Uganda, the prevalence of HIV is 6.0% among persons aged 15–49 years, facility and community Differentiated Service Delivery Models (DSDM) is a key strategy to achieving the UNAIDS 90–90–90 Goals. DSDM including Multi Month Drug distribution allow clinicians to offer targeted client centered care. The objective of this study was to establish client DSDM preferences and associated factors among PLHIV in rural public health facilities in Uganda.

Methods: We conducted a cross-sectional study in 11 high volume health facilities experiencing challenges with retention of PLHIV in care, in central Uganda, in October 2019. PLHIV were randomly sampled and interviewed to determine preference of DSDM. Facility records were reviewed to ascertain the DSDM distribution. Descriptive analysis for frequencies, percentages and univariate analysis were conducted. Logistic regression analysis was conducted with clustering by health facility for each factor to establish its association with DSDM preference.

Results: Among 11 participating facilities, 10 (91%) had >75% of the PLHIV on a facility-based model. Out of 202 clients interviewed, 70.7% were female, mean age was 39 years (SD 12.4). The majority, 57.9% (117/202) of PLHIV preferred a facility DSDM. District location (p<0.001), travel time (p<0.001) and treatment time for PLHIV (p=0.06) were significantly associated with model preference. Preference of facility DSDM was likely to decrease (OR=0.46, p=0.10) for PLHIV travelling more than two hours to reach the health facility compared to travelling for less than half an hour. Preference of the facility model was likely to significantly reduce (OR=0.61, p=0.04) for PLHIV with 11–14 years of treatment time compared to those on treatment for <1–5 years.

Conclusions: The client preference was higher for facility DSDM, this was significantly influenced by location of the facility, the time taken to reach facility and the length on treatment, these should be considered during implementation.

75. Improving Diagnosis of Childhood TB: Preliminary Results on Fujilam and SPK from “Rapaed-TB”

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Background: The diagnosis of tuberculosis (TB) in children remains challenging: current detection methods neither perform reliably nor are sampling methods child-friendly.

Methods: RaPaed-TB is a diagnostic validation study currently conducted in South Africa, Mozambique, Malawi, Tanzania, and India. Enrolment of children ≤14years was initiated in January 2019. Clinical and laboratory workup is standardized across sites, and diagnostic classification follows the current NIH-consensus statement. New tests conducted on site include the urine-based lateral-flow assay Fuji SILVAMP-TB LAM (FujiLAM) and Stool Processing Kit (SPK) for MTB-DNA detection.

Results: As of April 2021, 846 participants were enrolled. The median age was 5.7years (1.8-8.8years) with 14% of children being <1year (117/846) and 37% <5years (312/846). Overall Microbiological confirmation rate (PCRculture) was 21% (182/846). For AlereLAM, the overall sensitivity was 14.5% (95%CI 9.6-20.6) and specificity 92.9% (95%CI 88.0-96.3), while the sensitivity for FujiLAM was 34.9% (95%CI 27.8-42.6) and specificity 87.8% (95%CI 81.8-92.4). In our cohort, the SPK had a sensitivity of 35.8% (95%CI 28.5-43.6) and specificity of 87.9% (95%CI 81.9-92.4). When applying FujiLAM and SPK jointly, the sensitivity was 52.8% (95%CI 44.8-60.7) and specificity 73.6% (95%CI 65.8-80.5). The number of HIV-infected children with confirmed TB was small (16/182); no substantial difference in test performance was seen in this group. Further analysis of collected data is ongoing and therefore updated results will be presented during the forum.

Conclusion: The RaPaed-TB cohort allows large-scale evaluation of new tests. To our knowledge this is one of the first studies to prospectively evaluate FujiLAM and SPK head-to-head. Presented data on tests using easy-to-obtain samples indicate a modest performance of FujiLAM and SPK while showing better performance in some age subgroups. Additionally, FujiLAM performed better than AlereLAM with both the new tests indicating an improved performance in the very young and malnourished, showing their potential to aid diagnosis in these particularly vulnerable groups.

76. Improving disease surveillance data analysis, interpretation, and use at the district level in Tanzania

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Introduction: An effective disease surveillance system is critical for early detection and response to infectious disease epidemics. The objective of this study was to assess the management and uptake of disease surveillance data at the district level of the health system and devise strategies to strengthen the capacity for effective data analysis and utilization.

Methods: This was a mixed-methods study carried out in Ilala and Kinondoni Districts of Dar es Salaam in Tanzania. Key-informant interviews were conducted and involved members of the district council health management teams to determine surveillance data management capacity and practice. Data on the Integrated Disease Surveillance and Response (IDSR) priority diseases were extracted from the District Health Information Software-2, analysed, interpreted and discussed. An exploration was made as to whether or not the reported incidence of epidemic-prone diseases prompted any action from the district. The district team was then trained on basic data analysis, interpretation and use. The effectiveness of the intervention package was assessed using pre-and post-intervention tests.

Results: A total of 21 informants (median age=44.5 years; IQR=37, 53) were interviewed on the management of disease surveillance data. About half (11/21) reported having difficulties in finding the appropriate data required to make timely decisions. Over half (15/21) had the inadequate capacity to manipulate surveillance data to generate reports. Data generated by the district was mostly used in assessing health facility performance, resource management, and setting targets. Despite reports on viral hemorrhagic fevers, none of the two districts took action to investigate. Twenty-four individuals participated in the training. The overall post-training intervention score (89.8%) was significantly higher than the pre-intervention scores (69.9%).

Conclusion: Most of the district health officials had limited skills in data analysis, interpretation and use. Data generated by the district was rarely used to raise alerts or monitor disease trends. The training in data analysis and interpretation improved the knowledge of the participants by 20%. It is important to emphasize training to ensure district health officials have the required skills to analyze and use surveillance data.

Keywords: disease surveillance, data analysis, interpretation, use, district, Tanzania

77. Integrated malaria prevention in low- and middle-income countries: a systematic review

Corresponding Author: David Musoke

Background: Integrated malaria prevention is an innovative approach that advocates the use of several malaria prevention measures in a holistic manner at households including insecticide treated nets (ITNs), indoor residual spraying (IRS), improving housing structure, draining stagnant water, and closing windows and doors at sunset. The aim of this systematic review was to collate and summarize evidence on integrated malaria prevention in low- and middle-income countries.

Methods: PubMed, Embase, Cochrane library, Scopus, Web of Science, CINAHL, The Malaria in Pregnancy Consortium Library, Google Scholar, OpenGrey, ProQuest, ClinicalTrials. Gov, PACTR registry, and World Health Organization International Clinical trials registry platform were searched for published literature from 1st January 2001 to 31st July 2021. Integrated malaria prevention was defined as the use of 2 or more malaria prevention methods at a household holistically. The primary outcome variable was occurrence of malaria, while the secondary outcome was presence of mosquitoes in houses.

Results: A total of 6,652 studies were identified by the search strategy. After screening titles, 1,468 studies remained and were screened at abstract level, and 137 articles were retained and screened at full text level. Sixty-three articles qualified to be

reviewed. Interventions, study designs and outcomes were highly heterogeneous. Study designs included cluster-randomized controlled trials, cohort studies, cross sectional studies, and case studies. Interventions were generally combinations of two or three of these methods - ITNs, IRS, repellents, insecticide sprays, larvicides and house improvements. However, most studies combined two malaria prevention methods (especially ITNs and IRS; and ITN and repellents). Outcomes were also varied including malaria prevalence, malaria incidence, and mosquito presence/numbers. Overall, preliminary findings indicate that integrated malaria prevention was effective in reducing the occurrence of malaria and mosquito presence.

Conclusion: Results from this systematic review are expected to inform practice, policy and programming in malaria endemic countries to add to existing national and global control efforts.

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78. Investigation of a Rift Valley Fever Outbreak in Kiruhura District, Uganda June 2021

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Background: Rift valley fever (RVF) is an endemic viral zoonosis in Uganda, where there are sporadic outbreaks. On May 14, 2021, a 19-year-old female from Kasaana village, Kiruhura District tested positive for RVF by reverse-transcription polymerase chain reaction (RT-PCR). We investigated to determine the magnitude of the outbreak, source of infection, and recommend evidence-based control measures.

Methods: A confirmed case was defined as detection of RVF virus nucleic acid by RT-PCR or serum IgM/IgG antibodies by enzyme-linked immunosorbent assay (ELISA) in a resident of/visitor to Kasaana village from April 24-June 24, 2021. We tested blood samples from 25 persons (3 with RVF symptoms, 2 neighbors of the index case, and 20 randomly-selected villagers) using RT-PCR or ELISA, and 57 livestock (33 randomly-selected cows and 24 goats from 4 village farms reporting any animals with RVF symptoms) by ELISA. We collected data on demographics, history of RVF symptoms, and animal-related activities. We characterized cases epidemiologically.

Results: We identified 9 confirmed human cases in Kasaana village (2 RT-PCR-positive, 2 IgM/IgG-positive, 2 IgM-positive; 3 IgG-positive). One died (case fatality rate=11%). Five (56%) were female; median age was 20 years (range, 15–60 years). All cases kept cows and goats. Two case-patients reported headache, fever, and hemorrhage. The index case-patient, who milked cows on her family farm, had hemorrhagic symptoms consistent with RVF starting 1 week before death. She presented to five health facilities during that week but was only diagnosed after death. Three (9%) cows and five (21%) goats were IgM-seropositive for RVF.

Conclusion: This RVF outbreak likely resulted from contact with infected animal products. Earlier diagnosis might have prevented the index case-patient's death. We conducted health education among Kasaana villagers, and recommended training of health workers at facilities within the region to emphasize the importance of early diagnosis of hemorrhagic fevers.

Key words: Rift Valley Fever, Zoonosis, Uganda

79. Investigation of Sociodemographic Factors Associated with Uptake of Medically Assisted Therapy among People Who Inject Drugs in the Informal Settlements of Nairobi, Kenya: A Facility Based Cross Sectional Study

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Introduction: Heroin is an illegal, highly addictive opioid that is injected, snorted, or smoked. Use of injected heroin is a public health concern because it promotes spread of Human immunodeficiency virus (HIV) and viral hepatitis. The national prevalence of HIV and Hepatitis C Virus (HCV) among People who inject drugs in Kenya has been reported to be 18.9% and 30% respectively. The aim of this study was to determine the uptake and factors associated with uptake of medically assisted therapy (MAT) among people who inject heroin (PWIH) in Mathare informal settlements.

Methods: The study employed a cross-sectional study design. Study subjects were recruited in a consecutive manner as they sought services in a Drop-in Centre located in the study site.

Results: A total of 110 participants were recruited in the study. Majority were male (73%), not married (72%), Christians (66%), unemployed (55%) and had attained primary school education (58%). Their age ranged from 21 to 67 years (mean \pm standard deviation age: 36.1 \pm 8.9 years). Of the 110 study participants, 73 reported having ever enrolled for MAT (uptake: 66% (95% confidence interval (CI) 57%-75%)). There was a significant increment in uptake of MAT with increasing age with those aged >30 years having 4-fold odds of ever having been on MAT when compared to their younger counterparts (p<0.05).

Men had 70% lower odds of having ever enrolled for MAT (odds ratio (OR) 0.3 (95% CI 0.1, 0.8), $p=0.021$). Uptake of MAT was highest among participants who were married (83%) compared to those who were separated or divorced (71%) and those in singlehood status (70%) ($p>0.05$). An increment in uptake of MAT with increase in the education level in heroin users was observed (respectively uptake in those with tertiary, secondary, primary or no formal education was 89%, 94% and 51% respectively, $p<0.05$). Those who were employed had approximately 3-fold odds of having ever enrolled for MAT when compared with those who were not employed (78% versus 57%, respectively, OR 2.7 (95% CI 1.1, 6.2), $p=0.018$). Religion was not associated with uptake of MAT (OR 2.253 (95% CI 0.986-5.146), $p=0.052$).

Conclusion: Our research established modifiable determinants of the utilization of Medically Assisted Therapy in low resource urban settlements. The study recommends exploring approaches that will address the disparities observed in the uptake of MAT with respect to the sex and literacy levels of the PWIH.

80. Key factors influencing multidrug-resistant tuberculosis in patients under anti-tuberculosis drugs in Kibumbu Sanatorium and Bujumbura anti-tuberculosis Centres: A Mixt Effects Modelling Study in Burundi

Corresponding Author: Arnaud IRADUKUNDA

Background: Despite the World Health Organization efforts to expand access to the tuberculosis curative and preventive treatment, multidrug resistant tuberculosis remains big challenge for clinicians and staff operating in national. Tackling this will require targeted public health intervention based on evidence. In this study, using data from two referral anti tuberculosis in Burundi, we model the determinants factors associated with Multidrug resistant tuberculosis (MDR-TB) in Burundi.

Methods: A Case-control study was conducted. We used a primary data. Cases were 60 patients and 120 controls selected using Incidence Density Selection method. Data analysis were done in different steps. In the first step, a descriptive analysis was done. Patients' characteristics were presented in table of frequencies and percentages. In the second step, we evaluated the factors associated with MDR-TB using generalized linear model: binary logistic regression. Factors with p-value less than 25% and potential cofounding variables were included in multivariate logistic regression. Model was internally validated via bootstrapping with 1000 replications. The adjusted odds and confidence intervals were calculated. A p-value less than 5% was considered statistically. Last step, we calculated the predictive power of the final model and probabilities of MDR-TB occurrence. All analysis were done in R software.

Results: A High MDR-TB is observed in patients who lives in rural zone, in collective residence, in house with more than six people, many people who live in the same room, in patients with TB treatment history (86.4%) and in diabetics people. After modelling using fixed and random effects, Residence (AOR: 1.31, 95%CI: 1.12-1.80), People by house (AOR: 4.15, 95% CI: 3.06-5.39), MDR-TB close contact (AOR: 6.03, 95% CI: 4.01-8.12), History TB treatment (AOR: 2.16, 95% CI: 1.06-3.42), Tobacco consumption (AOR: 3.17, 95% CI: 2.06-5.45) and Diabetes (AOR: 4.09, 95% CI: 2.01-16.79) were statistically associated with MDR-TB. TB patients with no any risk factors had 17.6% of risk to become MDR-TB. That probability was respectively three times and five times higher among diabetic and close contact MDR-TB patients

Conclusion: Targeting interventions based on these identified factors will allow judicious channel of resources and effective public health planning

81. Molecular Characterization of Coagulase-negative Staphylococci spp. Causing Urinary Tract Infections in Tanzania

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Background: Urinary tract infections (UTIs) is mainly caused by *Escherichia coli*, but there is a growing body of evidence on potential involvement of Coagulase Negative Staphylococci spp. (CoNS) in causing UTI. Here, we report molecular characterization of CoNS causing UTI in Tanzania.

Methodology: A cross-sectional analytical laboratory-based study was conducted from June to August 2021. Previously identified CoNS from patients confirmed to have UTIs based on clinical features, a positive leucocytes esterase, ≥ 10 leucocytes/HPF and significant bacterial growth of $\geq 10^4$ CFU/ml in urine culture were retrieved, subculture and Whole genome (WG) sequenced. The assembled sequences were analyzed to identify species, STs, virulence genes and antimicrobial resistance genes.

Results: A total of 65 CoNS isolates were WG sequenced and 8 different species were identified [27 (41.5%) *Staphylococcus haemolyticus*, 24 (36.9%) *Staphylococcus epidermidis*, 5 (7.7%) *Staphylococcus saprophyticus*, 4 (6.2%) *Staphylococcus hominis*, 2 (3.1%) *Staphylococcus warneri*, 1 (1.5%) *Staphylococcus lugdunensis*, 1 (1.5%) *Staphylococcus cohnii* and 1 (1.5%) *Staphylococcus simulans*. *S. haemolyticus* was assigned to 6 different ST (ST30 (8), ST56 (2), ST1 (2), ST49 (2), ST38 (1) and ST66 (1)) while *S. epidermidis* were assigned 3 different ST (ST490 (4), ST329 (1) and ST150 (1)). Total of 61 (93.8%) had either one or multiple antimicrobial resistance genes, most predominant antimicrobial resistance genes were *dfrG* 52 (20.7%), *blaZ* 32 (12.7%) and *mecA* 26 (10.4%). The most prevalent virulence genes that may be implicated for UTI pathogenesis were *icaC* 47 (46.5%), and *icaA* 14 (13.9%).

Conclusion: *Staphylococcus haemolyticus*, and *Staphylococcus epidermidis* harboring *icaC* and *icaA* virulence genes and *dfrG* and *blaZ* AMR genes are the most predominant CoNS causing UTI in the study area. Further studies to explore the treatment outcome of patients with UTI due CoNS is recommended.

82. Multidrug resistance and epidemiological cut-off values of *Escherichia coli* isolated from domesticated poultry and pigs reared in Mwanza, Tanzania

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Background: The burden of multidrug resistance bacteria is increasing drastically, and poses a major threat to human and veterinary medicine globally as it is associated with increased morbidity and mortality. Currently there is limited information on the magnitude of multidrug resistance and epidemiological cut-off values (ECVs) of *Escherichia coli* (*E. coli*) isolated from poultry and pigs in Mwanza Tanzania.

Methodology: This was a cross-sectional study involving 297 pigs, 191 broilers and 203 layers reared in Mwanza-Tanzania between June and August 2021. Rectal/cloacal swabs were processed to isolate *Escherichia coli* followed by antimicrobial susceptibility testing as per Clinical and Laboratory Standards Institute (CLSI) guidelines 29th edition. Epidemiological cut-off values (ECVs) were determined using a computer software Normalized resistance interpretation (NRI) and data analysis was performed using STATA version 13.

Results: A total of 657/691 (95.1%) *E. coli* isolates were isolated from pigs (n=283), broilers (n=190) and layers (n=184). Overall, the multi-drug resistant (MDR) *E. coli* were observed in 227/657 (34.5%) of isolates (Pigs 16.6%, Broilers 44.2%, and Layers 52.2%, $P < 0.001$) while extended spectrum beta-lactamases (ESBL) was detected in 17.8% (Layers:30.9%, Broilers:5.3% and pigs:17.7%, $p < 0.001$). Based on ECVs of antibiotics tested *E. coli* from broilers, layers and pigs exhibited different population. Exotic breeding (aOR: 3.79, 95%CI: 2.38-6.03) was found to independently predict MDR colonization among poultry and pigs.

Conclusion: About one third of *E. coli* isolated from poultry and pigs were Multidrug resistant and significantly high proportion was among layers. Distinct populations of *E. coli* were circulating in layers, broilers and pigs based on ECVs of different antibiotics tested.

83. Non-Prescription antibiotics dispensing practices for patients with chronic UTI in community pharmacies and accredited drug dispensing outlets in Tanzania: A simulated Clients Approach

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Background: Antibiotic dispensing without prescription is suggested to be a major driver of the antimicrobial resistance (AMR) crisis which has impact on population health and cost in health care delivery. This study aimed to investigate nonprescription dispensing practices with focus on broad-spectrum antibiotics among sellers in community pharmacies and accredited dispensing drug outlets (ADDO).

Methods: A cross-sectional study involving 559 ADDOs and 113 community pharmacies were visited in three regions of Tanzania: Kilimanjaro (n=180, 26.8%), Mbeya (n=169, 25.2%) and Mwanza (n=323, 48.1%) in March-April 2020. The simulated client presented to the seller with chronic UTI-like symptoms, and immediately after the interaction, recorded the response of the seller, including sale of antibiotics without prescription. Data were analysed using descriptive statistics, testing for variation by region and type of outlet.

Results: Overall, 603(89.7%) of drug sellers dispensed antibiotics without prescription. Few ADDOs (61, 10.9%) and pharmacies (20, 17.1%) suggested that the client see a doctor for a prescription. Cephalexin and ciprofloxacin were the commonest 1st line and 2nd line antibiotics sold in 57(12.6%) and 152(33.6%) of encounters, respectively). A total of 187(46.8%) and 17 (32.1%) sellers in ADDOs and pharmacy, respectively, dispensed antibiotics not recommended for UTI. Among these, the

most common were doxycycline, was sold by 71 (17.7%) of ADDOs, and azithromycin, sold by 74 (18.5%) of ADDOs and 12 (22.6%) pharmacies. Furthermore, ADDOs dispensed antibiotics like ciprofloxacin which they are not regulated to stock.

Conclusion: Legislative enforcement as authorities regulations and laws to pharmaceutical sellers should need to practice urgent disciplinary actions such as giving fine penalties to sellers who do not adhere. Urgent training required for drug sellers on types of diseases and appropriate drugs, and what they are legally allowed to sell is highly recommended.

Keywords: Antibiotic; Antibiotic resistance; Dispensing practice; Prescription

84. Pathogenic Fungi From Bat Droppings Causing Histoplasmosis In Human In Southern West Of Tanzania: Mbeya Region. A Case Study

Corresponding Authors: Godlove Chaula

Background: Histoplasma is a genus of dimorphic fungi commonly found in birds and bats fecal materials and *Histoplasma capsulatum* is the causative agent of histoplasmosis which occurs worldwide and should not be overlooked in patients with unexplained pulmonary or systemic illnesses. *H. capsulatum* has been reported to cause human disease in the coastal areas around the cities of Tanga and Dar es Salaam. After exposure chronic histoplasmosis can resemble tuberculosis.

Methodology: This was a case study conducted at NIMR-MMRC, bats droppings were collected into falcon tubes and transported to the lab prior processed, 0.5ml of 0.85% NaCl was used to prepare the inoculum by vortexing, few drops were inoculated on two Sabouraud dextrose agar plates, we incubated one plate at room temperature for few days and another at 37°C for 24 hours. The results were identified macroscopically and microscopically.

Results: Culture at 37°C we observed 2-3mm, wrinkled, moist, heaped and creamy yeast like colonies, Gram stain we observed round, oval budding yeast cells at room temperature we observed white, fluffy mold that turns to brown to buff with age in celotape techniques we observed the mycelium with round microconidia.

Conclusion: From the results the fungi investigated was *Histoplasma capsulatum* which is the causative agent of Histoplasmosis in human and people should be prevented from exposed spores. The chronic stage of histoplasmosis has similar symptoms like those people who have *M. tuberculosis*.

85. Phenotypic and Molecular Detection of Extended Spectrum Beta Lactamase Producing *E. coli* from Human, Animals, and Environment using one-health approach in Tanzania.

Corresponding Authors: Adam Mwakyoma

Background: Antibiotic resistance associated with ESBL producing isolates challenge health system. The dissemination of the ESBL producing *E. coli* pose a problem to infectious disease, since it is a common gram-negative causing disease and described to be the greatest ESBL producing strain. Therefore, understanding the ESBL resistance profile to non-beta lactam antibiotics, allele's distribution and conjugation efficiency of *E. coli* is important in devising treatment guidelines, infection and prevention control measures and monitoring of infectious diseases associated with bacteria.

Methods: A total of 472 archived ESBL *E. coli* isolate were analysed. Antimicrobial susceptibility, Multi-plex PCR for SHV, TEM and CTX-M allele, single-plex PCR for transconjugants and Conjugative efficiency using *E. coli* J53 (*Az^r* plasmid free) as recipient.

Results: The resistance were highest for ciprofloxacin among urine 69/75 (92%) and gastrointestinal tract 171/200 (85.5%) isolates, followed by gentamicin among urine 42/75 (56.0%) and gastrointestinal tract (GIT) 73/200 (36.5%) isolates. The CTX-M gene was the commonest allele detected 415/472 (87.9%), followed by the combination of CTX-M and TEM 193/472 (40.9%). The conjugation efficiency in this study was 74% (37/50), of which 100% conjugation was observed among environmental isolates.

Conclusion: About half of the isolates from urine and environment were resistant to ciprofloxacin and gentamicin. Almost all isolates carry CTX-M, TEM and SHV with most common alleles being CTX-M and CTX-M + TEM. The highest transfer efficiency observed among environment isolates. This warranting exploring the mobile genetic elements circulating in the environments.

86. Plasmodium falciparum histidine-rich protein 2 and 3 gene deletions in field isolates from areas of different malaria endemicities in Tanzania

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Background: *Plasmodium falciparum* parasites lacking histidine-rich protein 2 and 3 (pfhrp2/3) genes have been reported in several parts of the world. There is enough evidence that these deletions could compromise the effectiveness of HRP2-based malaria rapid diagnostic tests. The National Malaria Control Programme in Tanzania adopted HRP2-RDTs since 2009 as a routine test for malaria and has currently substituted microscopy.

Methodology: Cross-sectional surveys were carried out in Tanzania, Moshi district (low malaria transmission area) and Handeni district (moderate/high malaria transmission area). From April to June 2018, a whole blood sample was taken just after the rainy season. On-site diagnosis of enrolled participants was performed using a qualitative malaria Ag P.f/Pan rapid test. A gold standard nested-PCR for *P. falciparum* identification was followed by a qPCR for parasite quantification and *Pfhrp2/3* gene detection. When a sample had two consecutive negative results on *pfhrp2/3* genotyping but positive results on microscopy, the set of PCR, and a density of more than 5 parasites/ μ l, gene deletion was confirmed.

Results: We investigated *pfhrp2/3* gene deletions in areas with diverse malaria intensities in Northeastern Tanzania. Findings from this study confirm the different transmission intensities in Moshi and Handeni, with a prevalence of 0.2% and 38% respectively. A low proportion of *pfhrp2* gene deletion 1.64% (n=122) was observed, while 61 out of 122 samples (50%) were negative for the *pfhrp3* gene. We did not find samples with both *pfhrp2* and *pfhrp3* gene deletions.

Conclusion: Results from this study highlight the need for routine and seasonal systematic surveillance of *pfhrp2/3* gene deletions in Tanzania to understand the magnitude of the deletions and the impact on the performance of mRDT

87. Poor antibiotic dispensing practices for COVID like symptoms and lack of adherence to preventive measures at community ADDOs and pharmacies in Mwanza, Tanzania

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Background: Antimicrobial resistance is a global health problem that can be exacerbated by COVID 19 pandemic as the results of antibiotics misuses. We assessed the drug sellers' antibiotics dispensing practices on COVID like symptoms and adherence to preventive measures at Community Accredited Drug Dispensing Outlets (ADDOs) and pharmacies in Mwanza, Tanzania during COVID 19 pandemic.

Methodology: A mystery client (MC) survey was conducted between May and June 2021 using scenario of COVID 19 like symptoms in 531 drug shops from three districts. Data were collected using Epicollect 5 data collection tool. Data analysis was done using STATA version 13.

Conclusion: Antibiotic commonly used for URTIs were dispensed without prescriptions for covid 19 like symptoms in both community ADDOs and pharmacies. Only few drug sellers observed preventive measures during COVID 19 pandemic with majority not alarmed by covid 19 symptoms presented by MCs. There is a need for more targeted messages to ADDOs and pharmacies sellers on COVID 19 current standard treatment guidelines and importance of adhering to preventive measures.

88. Praziquantel Therapy for Urogenital schistosomiasis in Pre-School Age Children of Kwale County: Assessment of Safety, Efficacy and Acceptability

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Introduction: The mainstay strategy for the control of schistosomiasis is preventive chemotherapy with praziquantel (PZQ). Pre-school-aged children (PSAC) are excluded from treatment in the current control programs. In high endemic areas, these children are also at risk of these infections and, hence require treatment with PZQ. The present study aimed at evaluating the safety, efficacy, and acceptability of PZQ in the treatment of *Schistosoma haematobium* infections in PSAC.

Methods: 400 PSAC \leq 6 years were enrolled from 10 randomly selected Early Childhood Education Centres in Kwale County, Kenya. The children were weighed, and treated with a single dose of PZQ (40 mg/kg). The PZQ tablets were crushed into a fine powder and then mixed with orange juice. Adverse events were assessed 1- and 24-hours post-treatment through questionnaires administered to the caregivers. Symptoms were classified according to severity as mild, moderate, severe, or life-threatening. Acceptability was determined by observing if the child vomited and/or spat all, or part of the PZQ dose immediately after treatment. Efficacy was assessed by examining urine samples for *S. haematobium* eggs 5-weeks post-treatment. Children testing negative for *S. haematobium* infections during follow-up were considered cured. Egg reduction rate (ERR) was calculated as decrement in infection intensity (group's geometric mean egg counts per 10 ml of urine) following treatment expressed as a proportion of the pre-treatment infection intensity.

Results: Before treatment, 80 out of the 400 children enrolled in the study tested positive for *S. haematobium* (20.0% (95% confidence interval (CI) 16.4 - 24.2%). Of these, 41 had infections of heavy intensity (51.3%) while the rest were of light intensity. Five weeks post-treatment, 10 children were diagnosed with *S. haematobium* (prevalence: 2.5% (95% CI 1.5 - 4.9%). Infection intensities decreased significantly from 45.9% (95% CI: 31.0-68.0%) to 1.4% (95% CI: 1.1-1.7%) eggs/10 ml urine during pre-and post-treatment assessment, respectively. The ERR was 96.9%. There were no drug-related adverse events during follow up done 1- and 24-hours post-treatment. During treatment, none of the children vomited and/or spat all, or part of the PZQ dose immediately after treatment.

Conclusion: Crushed PZQ mixed with orange juice is acceptable, safe, and effective in the treatment of urogenital schistosomiasis in PSAC.

89. Predominance of MDR Enterobacteriaceae causing UTI among symptomatic patients in East Africa: a call for action

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Background: In low- and middle-income countries, antibiotics are often prescribed for patients with symptoms of Urinary Tract Infections (UTIs) without microbiological confirmation, due to limited laboratory diagnosis. Antibiotic susceptibility patterns data are important in drafting evidenced-based empirical treatment guidelines. Here, we report common uropathogens and their susceptibility patterns from patients with UTI like symptoms in Kenya, Tanzania and Uganda.

Methods: Mid-stream urine samples were collected in 2019-2021 in different levels of health facilities. Urinalysis and urine culture was done using standardized protocol, where significant infection was defined by the presence $\geq 10^4$ cfu/mL of one or two uropathogens. Disk antimicrobial susceptibility testing (AST) was performed following the CLSI guidelines, and descriptive statistical analysis was conducted.

Results: A total of 7529 (Kenya, n=1896; Tanzania, n=3851; Uganda, n=1782) patients were included for microbiological analysis. The majority (93.6%) of patients were adults and 76.9% were female. Significant bacteriuria was observed in 2659 (35.1%) patients: Kenya 54.3%, Tanzania 29.2% and Uganda 28.4%. The sensitivity and specificity of urine dipstick was 83.4% and 38.1%, respectively. The predominant Gram negative uropathogens were: *Escherichia coli* (n=985, 39.1%), *Klebsiella* spp. (n=247, 9.8%) and other Enterobacteriaceae (n=154, 6.1%) while predominant gram positive uropathogens were: *Staphylococcus* spp. (n=704, 27.9%) and *Enterococcus* spp. (n=145, 5.7%). For Enterobacteriaceae (n=1386), resistance to antibiotics (trimethoprim, ampicillin, tetracycline, amoxicillin/clavulanic acid, ciprofloxacin, ceftriaxone, ceftazidime, nitrofurantoin and gentamicin) ranged from 21.3% to gentamicin to 69.3% trimethoprim. The proportion of extended spectrum beta-lactamases production and multi-drug resistance (MDR) among Enterobacteriaceae were 30.7% and 42.4%, respectively with significant variations among the three countries ($P < 0.001$). 37.3% *Staphylococci* were methicillin-resistant, with no significant variations among countries ($P > 0.05$).

Conclusions: Multidrug resistant bacteria of the Enterobacteriaceae family are a common cause of UTI in East Africa. Investing in laboratory culture capacity is crucial to improve accuracy of diagnosis and control of AMR.

90. Prevalence of and risk factors associated with HIV, Herpes Simplex Virus-type 2, Chlamydia Trachomatis and Neisseria Gonorrhoea infections among 18-24 year old students attending Higher Learning Institutions in Mbeya-Tanzania

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Background: Sexually transmitted infections (STIs) are common among young people in low- and middle-income countries and are associated with negative reproductive and pregnancy outcomes. Most of the studies have assessed HIV among adolescents and young adults, with limited information on occurrence of other STIs in this population. This study aimed to describe the prevalence of and risk factors associated with Herpes Simplex Virus-type 2, Chlamydia Trachomatis, Neisseria Gonorrhoea, Syphilis and HIV infection among young adults attending Higher Learning Institutions (HLIs) in Mbeya, Tanzania.

Methods: We conducted a cross-sectional study among randomly selected students aged 18-24years attending HLIs in Mbeya, Tanzania. Participants were tested for Herpes Simplex Virus-type 2, Chlamydia Trachomatis, Neisseria Gonorrhoea, Syphilis and HIV infection. No culture was performed for positive Neisseria Gonorrhoea samples. We used a self-administered questionnaire to collect information on sexual activity and risk factors to the tested STIs.

Results: We enrolled 504 students from 5 HLIs, with mean age of 21.5 years (SD 1.7). 17% of the students had at least one STI, prevalence was higher among females than males (21.1% versus 14.1%). Chlamydia trachomatis (11%) and HSV-2 (6.1%)

were the most common STIs, while *Neisseria Gonorrhoea* (1.1%) and HIV (0.7%) infection had the least occurrence. None of the participants was diagnosed with syphilis. In univariate analysis, predictors for STIs were gender, residency, sex under the influence of recreational drugs, report of oral sex, sexual orientation and cross-generation sex; while in the adjusted analysis, sex and residency remained significant.

Conclusion: STIs such as Chlamydia and HSV-2 which are commonly asymptomatic are of concern among young adults attending HLIs. The latter is an important group that needs attention and recognition that is pivotal in transmission of STIs considering their risk, mobile nature of the HLI community and the noted interaction with their existing surrounding communities/general population. IEC campaigns targeted to young adults, especially those at HLIs, need to focus on exposure-risk minimization. Funding institutions that have invested heavily on HIV prevention campaigns should consider giving similar recognition to other STIs for a streamlined outcome.

91. Prevalence of Blood Stream Infections and Associated Factors among Febrile Neutropenic Cancer Patients on Chemotherapy at Ocean Road Cancer Institute, Tanzania

Authors: Lambert Christophe Safari

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Background: Febrile Neutropenia (FN) caused by bacteria in cancer patients is associated with poor prognosis.

Aims: To determine the prevalence of FN and associated factors among cancer patients on chemotherapy at Ocean Road Cancer Institute, Tanzania.

Methods: A cross-sectional study was conducted from June to August 2019. Study participants were conveniently recruited. A desk review of participants medical records was performed. Standard microbiological procedures used to culture and identify the bacterial isolates from the positive blood cultures of participants that presented with FN. Kirby-Bauer disc diffusion was used to perform the antibiotics susceptibility testing. SPSS version 20.0 and MS Excel were used in data entry and analysis. Chi-Square was used as a measure of association between various factors and neutropenia. P-Value less than 0.05 was considered statistically significant.

Results: A total 213 participants were enrolled. Of these 76.1% were female. Most of the participants came from the Coast region. Majority of participants presented with breast Cancer (36.2%) and GIT (20.2%). The prevalence of FN and bacteremia was 5.6% and 35.3% respectively. *Staphylococcus Aureus* (60%) and Coagulase-Negative Staphylococci (40%) were the main isolates. Of the 6 isolates tested most were resistant to Co-Trimoxazole 4/6 (66.7%) and Doxycycline 3/6 (50%). FN was positively associated with chemotherapy regimen ($P=0.0001$), platelets count ($P=0.0001$) and use of G-CSF ($P=0.0001$).

Conclusion: The prevalence of FN among the cancer patients on chemotherapy in Tanzania is low but associated with drug-resistant bacteria.

Keywords: Bacteremia, BSIs, Susceptibility, Febrile Neutropenia, FN, Cancer, Chemotherapy, Tanzania, ORCI.

92. Prevalence of TB/HIV co-infection among adult patients attending HIV clinic in Juba Teaching Hospital, South Sudan: Five years retrospective study; January, 2010-December, 2014.

Corresponding Author: Kenneth Lado

Co-author: Lino Sube

Objective: The aim of this study was to determine the prevalence of tuberculosis among HIV positive adult patients in the HIV clinic in Juba Teaching Hospital in South Sudan.

Method and Materials: This was a retrospective study of 183 HIV positive patients generated from the HIV registers in the HIV clinic. The socio-demographic, treatment and clinical status of participants were determined and described using percentages and frequencies for categorical data while mean and standard deviation were used for describing continuous data. ANOVA or t-test were used for making comparisons while Pearson's correlation coefficient test was used to evaluate associations in continuous variables and Chi squared test was used for categorical variables. The level of significance was set at $p < 0.05$.

Results: Out of 183 patients, 110(60.1%) were females and 73(39.9%) were males. TB/HIV co-infection prevalence was 19.6% and the mean age of the co-infected was 34.2 (SD ± 10.38) years. Out of the coinfecting, 28 (62.2%) were females and 17(37.8%) males. No significant sex association observed ($p=0.7$) among co-infected. The co-infection rate was significantly higher ($p=0.02$) among unmarried/single patients. The year of diagnosis of TB among HIV patients showed significant association ($p=0.01$) with 2013 with the highest prevalence (24.6%) compared to the other years.

Conclusion: Prevalence of TB is high among HIV positive patients and young/unmarried people with positive HIV status are more likely to TB infections.

93. Pulmonary function testing and predictive equations in child population in Mbeya, Tanzania

Corresponding Authors: Olena Ivanova

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Background: The increased use of pulmonary function tests in research as well as in the diagnosis and managing of lung diseases has led to the need for locally derived reference equations in many African settings. Global Lung Initiative (GLI) taskforce also acknowledged that there is a lack of spirometric data for certain ethnic groups and encouraged further studies. Reference standards are widely lacking in Sub-Saharan African countries, especially for children. This study aimed at establishing lung function values and predictive equations for healthy children living in Mbeya, Tanzania.

Methods: We applied a cross-sectional study design. Informed consent was obtained from eligible participants from their parents/caregivers. Anthropometric measurements, e.g. height, weight were obtained, questionnaires were used to gather demographic and behavioral components, and lung function testing was performed using a hand-held spirometer. Data was double-entered, coded and analyzed using descriptive statistics and logistic regression to develop predictive equations.

Results: A total of 284 children produced valid spirometry results. The mean age of children in years was 12.5 (SD 2.2) with equal distribution of males (142) and females (142). Mean Forced vital capacity in liters was 2.3 (0.6) and mean *Forced expiratory volume* in liters was 2.0 (0.5). Using GLI equations as reference standards, a total of 236 (83.1%) of children had normal lung function with the rest having abnormal ventilation pattern on spirometry – restriction (11.3%) to be the most prevalent. We constructed the predictive Tanzanian equations and compared them to GLI predictions for this age group (6.5-17.5). Associations with risk factors, e.g., passive smoking or cooking were also assessed.

Conclusions: To our knowledge, this was the first study to obtain local population spirometric equations for children in Tanzania. The pending analyses will reveal to what extent GLI equations are appropriate for this specific African setting and what the relevant risk factors for lung function impairment in Tanzanian children are.

94. Routine Tuberculosis testing surveillance system evaluation report at Central Tuberculosis Reference Laboratory (CTRL) – Muhimbili 2021.

Corresponding Author: Eustadius Kamugisha Felician

Introduction: Tuberculosis (TB) is a communicable disease that remains a major global health problem and one of the top 10 causes of death worldwide and the leading cause of death from a single infectious agent ranking above human immunodeficiency virus (HIV)/acquired immune deficiency syndrome (AIDS). Globally, an estimated 10.0 million (range, 8.9–11.0 million) people fell ill with the disease leading to 1.2 million deaths in 2019. In Tanzania TB incidence has fallen from 306 per 100,000 population in 2015 to 253 per 100,000 in 2018. Surveillance system evaluation is very important for funders and stakeholders to know if the system meets its intended objectives. Therefore, this evaluation will assess the performance of surveillance system for routine TB testing at CTRL whether it is meeting its set objectives, assess its usefulness and describe its attributes.

Methods: The TB surveillance system was evaluated using Centre for Disease Control and Prevention updated guidelines for evaluating public health surveillance systems 2006. Records and TB database was review from 2017 to 2020 to assess objectives of the system and attributes of the system at CTRL as national reference laboratory for TB, Bugando Medical Centre Laboratory (BMCL) as the lake zone reference laboratory serving six regions, Misungwi and Magu District Hospital as the district hospital found in Mwanza region. PVP was defined as proportion of persons identified as TB patients (Sputum smear positive) who actually have TB (confirmed by culture or molecular methods). Key informative interviews were conducted at the various levels using semi-structured questionnaire and data analysis done with Epi info 7 and Microsoft Excel to run frequencies and percentages.

Results: The surveillance system is well structured with standardized data collection tools. The system was found to be useful and met its objectives. It was also found to be simple, flexible, and stable with average timeliness in TAT but partially in transit time. For the last 12 months there was no samples rejected due insufficient volume or presence of food particles, and rejection rate for other reasons was <1% for the last 12 months while the target was 3%. By using key informative interview 31 staffs were interviewed and all participants responded all questions regarding their area of expertise. It had low acceptability and low geographical representation. It had low sensitivity of 25.6%. Predictive value positive was partially low of 79.8%.

Conclusion: The surveillance system was found to be useful and met its objectives.

95. Spatial and Spatio-temporal distribution of human respiratory syncytial virus, human parainfluenza virus, and human adenoviruses in Kenya 2007-2013

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Co-authors: Julius Oyugi, Mancuso D. James, Wallace D. Bulimo

Background: The epidemics triggered by the human respiratory syncytial virus (HRSV), parainfluenza (HPIV), and adenovirus (HAdV) vary in geographical location, time, and virus type. With the use of geographic information systems (GIS), and the

available methods to detect spatial and space-time clusters, the regions prone to infections can be identified. We sought to identify spatial and space-time clusters of HRSV, HPIV, and HAdV cases with statistical significance in different regions of Kenya.

Methods: We used geographical information system (GIS) and spatial scan statistic to perform the analysis on retrospective data. The data were collected from surveillance sites and aggregated at the county level to identify purely spatial and Spatio-temporal clusters. The local Moran's I test was applied to detect the presence of spatial autocorrelation. The purely spatial scan statistic was performed to detect the spatial clusters of HRSV, HPIV, and HAdV cases. Besides, space-time clusters were detected by space-time scan statistics. Both analyses were based on the discrete Poisson model and statistical significance of $p < 0.005$.

Results: The results indicated that HRSV, HPIV, and HAdV cases had a significant autocorrelation within the study areas. Further, the three respiratory viruses had local clusters with significant positive autocorrelation in the Western region of the country with ($P < 0.05$). The primary purely spatial clusters of HRSV, HPIV, and HAdV occurrence were found in the Western region. Besides, the space-time analysis indicated that HPIV primary cluster persisted in the Western region over the study period of 2007 to 2013. However, HRSV and HAdV primary clusters were observed in the Coastal region during 2009-11 and 2008-09 respectively.

Conclusion: The findings of this study suggested that the hotspots (clusters) for RSV, HPIV, and HAdV occurred in the Western and Coastal regions of Kenya from 2007 to 2013. The Western region appeared more prone to the occurrence of the three respiratory viruses irrespective of the time.

96. Susceptibility of Campylobacter Strains to Selected Natural Products and Frontline Antibiotics

Corresponding Authors: Noel Gahamanyi

Description: *Campylobacter* species have developed resistance to existing antibiotics. The development of alternative therapies is, therefore, a necessity. This study evaluates the susceptibility of *Campylobacter* strains to selected natural products (NPs) and frontline antibiotics. Two reference strains (*C. jejuni* ATCC® 33560TM and *C. coli* ATCC® 33559TM) and two chicken-derived strains (*C. jejuni* MT947450 and *C. coli* MT947451) were used. The antimicrobial potential of the NPs, including plant extracts, essential oils, and pure phytochemicals, was evaluated by broth microdilution. The growth was measured by spectrophotometry and iodinitrotetrazolium chloride. Antibiotic resistance genes (*tet*(O) and *gyrA*) were characterized at the molecular level. The minimum inhibitory concentrations (MICs) and the minimum bactericidal concentrations (MBCs) ranged from 25 to 1600 µg/mL. Cinnamon oil, (E)-Cinnamaldehyde, clove oil, eugenol, and baicalein had the lowest MIC and MBC values (25–100 µg/mL). There were no differences in MIC values against both ATCC and chicken-derived *Campylobacter* strains. MT947450 and MT947451 were sensitive to erythromycin and gentamicin but resistant to quinolones and tetracycline. Mutations in *gyrA* and *tet* (O) genes from resistant strains were confirmed by sequencing. The findings show that NPs are effective against both drug-sensitive and drug-resistant *Campylobacter* strains. The resistance to antibiotics was confirmed at phenotypic and genotypic levels. This merits further studies to decipher the action mechanisms and synergistic activities of NPs.

97. The Occurrence of Cystic Echinococcosis and Molecular Characterization from Livestock in Isiolo, Garissa and Wajir Counties, Kenya

Corresponding Author: Dr. Hellen Akoth Omondi

Background: Cystic Echinococcosis (CE) is a zoonotic disease, spread worldwide and caused by the larvae of wild and domestic canids tapeworm, *Echinococcus granulosus* sensu lato (s. l.). CE prevalence is high among rural pastoralist communities where socioeconomic and cultural conditions facilitate its transmission. The current study aimed to estimate the prevalence of CE in livestock in the north-eastern counties of Kenya and characterize the species of *E. granulosus* s.

Methods: The study was undertaken in Isiolo, Garissa and Wajir counties in October and November of 2018 where daily abattoir visits were made in the main abattoir per county for a week. Carcasses and organs of slaughtered animals were inspected to establish the presence of cysts. Cysts were individually labelled and stored in 70% ethanol and contents examined microscopically. DNA was extracted by lysing of single protoscolex or cyst material in sodium hydroxide or by the use of the DNeasy Blood and Tissue Kit. Polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) and sequencing of the NADH dehydrogenase subunit 1 (*nad-1* gene) was carried out to characterize the genotypes of *Echinococcus granulosus*.

Results: The overall prevalence rates for CE were 29.1% in camels (68/234), 14.4% in cattle (17/118), 9.9% (68/689) in goats and 8.2% in sheep (27/329). Isiolo County had the highest number of recovered cysts at 61.4%. The liver was the most frequently infected organ with 72.88%. There was a significant association between the county of animal origin and animal species with the occurrence of CE. *Echinococcus* species identified were *E. granulosus* sensu stricto (s. s.) and *E. canadensis*- (G6/7) which are both zoonotic. Mixed infections with *Taenia* species was also noted.

Conclusions: Garissa and Wajir counties are emerging CE foci due to the huge slaughter volumes and especially that of camels. The fertility of cysts in camels and frequency of *E. canadensis* (G6/7) in all livestock species indicate that camels play

an important role in the maintenance of CE in the north-eastern counties of Kenya. Similar studies that include molecular characterization of *E. granulosus* s. l. in livestock, humans and dogs should be carried out in the non-endemic areas to estimate the prevalence of the disease together with dog population control.

98. Therapeutic efficacy of artemether-lumefantrine (Coartem®) for the treatment of uncomplicated falciparum malaria in Africa: a systematic review

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Background: Early diagnosis and effective treatment is the cornerstone of malaria control. In this review, the efficacy of AL, the recommended first-line treatment for uncomplicated *falciparum* malaria in most African countries, was evaluated.

Methods: Articles published between January 2015 and July 2019 on the efficacy of AL for the treatment of uncomplicated falciparum malaria in Africa were systematically searched using comprehensive search strings from PubMed/Medline, SCOPUS, and grey literature from Google Scholar. Interventional studies that followed patients for at least 28 days were included. While computing the efficacy of AL, polymerase chain reaction (PCR)-corrected cure rate (adequate clinical and parasitological response, ACPR) at day 28 was considered as the main endpoint.

Results: In this review, 39 articles that reported the treatment outcome of 8, 320 patients were included. After 28 days of follow-up, the pooled PCR uncorrected and corrected APCR was at 87% (95%CI: 85-90%) and 97.0% (95%CI: 96-98%), respectively. Moreover, the proportion of early treatment failure (ETF) was almost 0% while most of the included articles reported <8% late treatment failures. The reinfection and recrudescence rate was less than 10% and 2.6%, respectively within 28 days.

Conclusions: Despite it is more than a decade since its introduction, Coartem® remains effective and thus could continue to be the drug of choice for the treatment of uncomplicated *falciparum* malaria for all age groups in Africa. However, the risk of new emerging resistance for this combination warrants regular monitoring of its efficacy across the continent.

99. Three Promising Antimycobacterial Medicinal Plants Reviewed As Potential Sources of Drug Hit Candidates against Multidrug-Resistant Tuberculosis

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Description: Regimens of current drugs for tuberculosis are lengthy and are associated with many adverse effects. Currently, the emergence of different resistant strains has been observed. This urges a need for the discovery and development of novel drugs. The main sources of drug lead candidates are based on natural products. *Zanthoxylum leprieurii*, *Lantana camara*, and *Cryptolepis Sanguinolenta* are among the plants that have antimycobacterial activity against Multidrug-Resistant *M. tuberculosis* strains. Recent technological methods, such as metabolomics, can rapidly detect and identify active compounds from medicinal plants. In this review, we aim to provide an overview and discussion of the antimycobacterial activity, phytochemical analysis, and toxicity profile of these plants and their products as well as the potential of metabolomic fingerprinting of medicinal plants with a given activity on microbes, in the search for the potential drug hit molecules. The information for this review was extracted from databases such as Excerpta Medica Database, Google Scholar, Springer, and PubMed Central. Primary studies, using a combination of the keywords antimycobacterial medicinal plant, multidrug-resistant tuberculosis, phytochemistry, toxicity, *Zanthoxylum leprieurii*, *Lantana camara*, *Cryptolepis sanguinolenta*, and plant metabolomics/metabolic fingerprinting of plant extracts, have been considered. The above-mentioned plant species showed antimycobacterial activity against drug-resistant strains of *M. tuberculosis*. They may provide potential candidates for novel drugs against multidrug-resistant tuberculosis. However, extensive work is still needed. To our knowledge, there is no or limited literature that reports the metabolic fingerprints of these plants. The analysis of the metabolite fingerprints of medicinal plants with similar antimicrobial activity could be important to determine whether the activity results from common metabolites within different plant species. This review shows that these plants are potential candidates to provide drug hits against multidrug-resistant tuberculosis strains. Future studies of compound optimization, *in vivo* safety and efficacy, as well as of the specific mechanisms of action are however required.

100. Towards increasing vector control coverage: a semi-field evaluation of Skintex™ blankets, alone and in combination with Olyset LLIN, against pyrethroid-resistant *An. gambiae***Corresponding Author:** Salum Azizi**Co-authors:** Johnson Matowo, Njelemba Mbewe, Matthew Kirby, Rashid Athumani, Wambura Matiku, Magreth Shayo, Filemoni Tenu, Franklin Mosha, Jovin Kitau**Background:** Increased insecticide resistance in malaria vectors contributes to sustained high disease burden in Africa. The Indoor Residual Spraying and Long-Lasting Insecticidal Nets (LLINs) are efficient tools for vector control, but are not compatible with some shelters found in refugee and emergency camps. To improve vector control in these settings, we evaluated the efficacy of Skintex™ blankets industrially coated with permethrin (1.25g/m²) and piperonyl butoxide (0.625g/m²), against pyrethroid-resistant *An. gambiae* compared to standard Olyset and Olyset Plus LLINs.**Methods:** In experimental hut trial, efficacy of Skintex™ blankets alone and in combination with Olyset LLIN against pyrethroid-resistant *An. gambiae* mosquitoes was compared to Olyset Plus, Olyset LLIN and an untreated blanket in terms of mortality and blood-feeding inhibition.**Results:** The Skintex™ blanket plus Olyset LLIN performed similar to Olyset Plus in terms of blood-feeding inhibition (blanket + Olyset 87%: Olyset Plus 94%) and mortality (75% and 92% respectively) and better than Olyset LLIN. Use of blankets alone was associated with more mosquito bites and inferior efficacy compared to Olyset and Olyset Plus LLINs.**Conclusions:** Skintex™ blankets improves efficacy of Olyset LLIN when used in combination, and offer protection equivalent to Olyset Plus against pyrethroid resistant *An. gambiae*. However, further studies are needed to assess field performance and acceptability.**Key words:** insecticide resistance, blankets, vectors**101. Traditional uses and antibacterial activity of *Opuntia ficus-indica*, a case study of Kasese District, Western-Uganda****Corresponding Authors:** Diana Sitenda**Description:** Antibiotic resistance is a growing threat in the human population. Importantly, plants, including *Opuntia ficus-indica*, which is invasive to Uganda with potential therapeutic value, have the potential to help in fighting diseases, including bacterial infections. However, no study has been conducted on *Opuntia ficus-indica*, especially its stem and fruit, to evaluate its antibacterial potential and other applications.To help understand its potential, I conducted a survey using a questionnaire targeting 60 people in the age ranges of 18-35, 35-50, and >50 which asked about the usage and therapeutic value of *Opuntia ficus-indica*, which revealed that there was a benefit for the treatment of other diseases including diabetes and asthma. In addition, I also carried out anti-bacterial analysis from extracts from the fruit and stem from *Opuntia ficus-indica* using the Agar well diffusion method.From the study, I discovered that both fruit and stem extracts exhibit antibacterial activity. Interestingly, the fruit extracts showed higher antibacterial activity against *E. coli*.Collectively, results from the study support the fact that *Opuntia ficus indica* can be used to treat bacterial infections as well as other diseases. More work is needed to understand the full therapeutic value, including further drug development studies, of *Opuntia ficus-indica* to treat a multitude of different diseases.**102. Treatment outcomes among Medically-Assisted Therapy clients, Mombasa-Kenya.****Authors:** Nassoro Mwanyalu**Co-authors:** Maria. Nunga, Raphael Mwanyamwai, Maurice Owiny**Background:** To prevent the spread of HIV and other morbidities among heroin users, Kenya adopted Medically Assisted Therapy (MAT) program in 2014. We sought to describe poor treatment outcomes among MAT clients in Kisauni clinic.**Methods:** We reviewed enrolled patients records at Kisauni clinic, 2017-2019. Data sources were; MAT register, laboratory register, and Patients' MAT card. Poor treatment outcome was defined as any patient Lost to Follow Up (LTFU), seroconverted to HIV, Hepatitis B or Hepatitis C, or defaulter to antiretroviral therapy. Variables collected were socio-demographic characteristics, clinical and risk factors. Data were analyzed using Epi Info7. We calculated Prevalence Odds Ratios (POR) and their 95% Confidence Intervals (CI) to identify factors associated with poor treatment outcomes.**Results:** Of the records reviewed, 443 were eligible. The mean age was 37 years (SD±8.2) and 46.9% (208/443) were aged 31–40 years. Proportion of HIV positive patients was 13.1% (58/443), Hepatitis B was 7.2% (32/443) and Hepatitis C was 8.8% (39/443). Prevalence of poor treatment outcome was 27.5% (122/443). LTFU from MAT were 22.8% (101/443), seroconverts were 4.3% (19/443), antiretroviral therapy defaulters were 0.05% (2/443). HIV clients linked to comprehensive care center (CCC) at the clinic were 13.7% (8/58) and 75% (6/8) had undetectable viral Load levels. Not educated (POR 3.4,

CI:1.6–7.2), unemployment (POR:2.7, CI:1.6–4.48), and opioid use ≥ 5 years (POR:2.8, CI:1.77–4.5) were associated with poor treatment outcomes.

Conclusion: Lack of education, opioid use for ≥ 5 years and unemployment could be factors contributing to poor treatment outcomes among MAT patients. We recommend close monitoring for clients with these characteristics and integration of CCC to MAT services.

103. Treatment-seeking behaviours for symptoms of urinary tract infection in East Africa and irrational use of antibiotics: A mixed-methods study

Corresponding Author: Mary Abed Al Ahad

Co-authors: Kathryn Jean Fredricks, Cathie Kansime, Stella Neema, HATUA consortium

Background: Patients with urinary-tract infections (UTIs) in low-middle-income countries (LMICs) may struggle to access appropriate care, exacerbating antibiotic (AB) misuse, and hence antimicrobial-resistance (AMR). This mixed-methods study examines the socioeconomic and attitudinal factors (perceived symptoms stigma, difficulty in meeting healthcare costs, and recurrent UTI-episodes) associated with patient treatment-seeking behaviour (seeking-treatment delayed for more than 2 weeks, self-treatment in step1 of pathway, having 2+ steps in the pathway, and antibiotics consumption at step1 or 2 of pathway) for UTI-like symptoms in three East-African countries.

Methods: We use data collected by the HATUA Consortium from a total of 6,059 adult outpatients with UTI-like symptoms recruited from 25 clinics distributed over 9 sites in each of Tanzania (n=2,888; 47.7%), Uganda (n=1,706; 28.1%) and Kenya (n=1,465; 24.2%). Patients self-reported their treatment 'pathway' prior to attending the clinic using a structured questionnaire. In-depth qualitative interviews were conducted with a subset (n=103) and analysed using thematic-content analysis. Odds of delayed treatment-seeking, self-treatment, antibiotic consumption, and pathway complexity if 2 or more steps were computed using Bayesian-hierarchical models.

Results: Analysis of total-sample (N=6,059) combining all three countries revealed that delay in treatment-seeking (>2 weeks) was experienced by 27% of patients. More than half of patients sought treatment through treatment providers other than recruitment-clinic, of which 53% tried one previous treatment, 29% tried 2, and 18% tried 3+ treatments. Of those with a multi-step pathway, 75% visited other government or private clinics, whilst 25% self-treated with drugs from pharmacies or home remedies/herbs. Nearly half took antibiotics (ABs) before coming to clinic (40% UTI-suitable ABs; 9% non-suitable). Country-specific analysis showed that Kenyan patients reported simpler pathways but were more likely to use drug sellers as their first step than Tanzanian and Ugandan patients. Location, treatment costs, waiting time, and trust were major reasons influencing treatment choices in all countries. There were mixed associations with socioeconomic and attitudinal factors in total-sample analysis: patients reporting difficulty meeting healthcare costs were more likely to delay treatment-seeking (OR=1.20; 95%HPDI=0.99, 1.41) and to self-treat (OR=1.87; 95%HPDI=1.47, 2.29). Delayed treatment-seeking and complex 2+step pathways were more common among wealthier patients (OR>1; Ref=1st wealth quintile). Recurrent UTI was associated with multi-step pathways (OR=2.33; 95%HPDI=1.90, 2.76) and AB consumption (OR=1.59; 95%HPDI=1.26, 1.95). Country-specific analysis revealed differences in the degree to which stigma to UTI-like symptoms affected treatment-seeking behaviour.

Conclusion: Wealthier patients contribute as much as poor people to sub-optimal treatment choices and the development of ABR in East Africa.

104. Twenty Years of Integrated Disease Surveillance and Response in Sub-Saharan Africa: Challenges and Opportunities for Effective Management of Infectious Disease Epidemics

Authors: Irene R. Mremi

Co-authors: Janeth George, Susan F. Rumisha, Calvin Sindato, Sharadhuli I. Kimera, Leonard E.G. Mboera,

Introduction: This systematic review aimed to analyse the performance of the Integrated Disease Surveillance and Response (IDSR) strategy in Sub-Saharan Africa (SSA) and how its implementation has embraced advancement in information technology, big data analytics techniques and wealth of data sources.

Methods: HINARI, PubMed, and advanced Google Scholar databases were searched for eligible articles. The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analysis Protocols.

Results: A total of 1,809 articles were identified and screened at two stages. Forty-five studies met the inclusion criteria, of which 35 were country-specific, seven covered the SSA region, and three covered 3-4 countries. Twenty-six studies assessed the IDSR core functions, 43 the support functions, while 24 addressed both functions. Most of the studies involved Tanzania (9), Ghana (6) and Uganda (5). The routine Health Management Information System (HMIS), which collects data from health care facilities, has remained the primary source of IDSR data. However, the system is characterized by inadequate data

completeness, timeliness, quality, analysis and utilisation, and lack of integration of data from other sources. Under-use of advanced and big data analytical technologies in performing disease surveillance and relating multiple indicators minimises the optimization of clinical and practice evidence-based decision-making.

Conclusions: This review indicates that most countries in SSA rely mainly on traditional indicator-based disease surveillance utilising data from healthcare facilities with limited use of data from other sources. It is high time that SSA countries consider and adopt multi-sectoral, multi-disease and multi-indicator platforms that integrate other sources of health information to provide support to effective detection and prompt response to public health threats.

Keywords: Disease surveillance, data source, performance, big data, One Health, Sub-Saharan Africa

105. Ujiplus® deworming porridge: A novel homegrown approach to Africa's national school deworming programs

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Co-authors: Maina Geoffrey, Matey Elizabeth, Maiyo Alex, Maritim Elizabeth, Kinyua Florence, Omondi Protus, Otieno Phelgona, Ishizaki Azumi, Tokoro Masaharu, Ichimura Hiroshi, Songok Elijah Maritim

Introduction: Schistosomiasis is one of the world's neglected tropical diseases (NTD), with children carrying the highest burden of infection. Currently, the management of schistosomiasis is through school-based mass drug administration (MDA) using praziquantel. However, praziquantel is not recommended for children below 6 years and does not consider child malnutrition a very common malady in African countries. Besides, there are concerns of emerging resistance to praziquantel with long-term use. Here we report the results of a pilot evaluation of a novel innovation, Ujiplus®, a porridge snack that combines school feeding and deworming.

Methods: Four schools in Mwea sub-County of Kenya; Mbiu njeru, Mianya, Mokou, and Thiba were selected based on their high prevalence of schistosomiasis; The overall prevalence of *S. mansoni* at baseline was 38.7% (104 of 269). Each child in Early Childhood Development (ECD) class received a serving of 300 ml Ujiplus® every school day for 25 days. A stool sample was taken from all children for *Schistosoma mansoni* (*S. mansoni*) microscopy (Kato-Katz) before the study began in June 2019, at the end of 25 days and one month after the August holidays without taking Ujiplus®.

Results: A total of 269 children participated in the trial (140 female vs 129 male). The mean age was 5 years (SD1.0; range 3-11); and the mean weight was 17.2 kg (SD 2.5 range 10-28.4). Ujiplus® reduced the prevalence of *S. mansoni* from 38.7% (104 of 269) at baseline to 20.1% (54 of 269, $p < 0.001$) after 25 days of use. The prevalence however rebounded to 28.6% (77 of 269) after the school holidays. *S. mansoni* mean egg count similarly reduced by 91.58% on feeding with Ujiplus® (212.7 to 17.9 mean egg count, $p < 0.0001$), but rebounded to 77.4 mean egg count after the holidays.

Conclusion: Ujiplus® school feeding may act as an alternative or supplement to current national school-based deworming programs in Africa especially to child populations that are out of reach to current chemotherapeutic approaches. As a simple school meal, Ujiplus® brings the added benefit in the fight against child malnutrition. There is a need to evaluate Ujiplus® in large vulnerable children populations to confirm the efficacy and optimal duration of dosing.

Keywords: Schistosomiasis, Ujiplus®, *Schistosoma mansoni*, Children

106. Uptake, adherence and barriers to occupational post exposure prophylaxis for HIV in Sub-Saharan Africa: Systematic Review and Meta-Analysis

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Co-author: Prosper Karame

Background: Health care providers are considerably prone to occupational exposure to blood and body fluids. Contextually, they are at the greatest risk of blood-borne infectious pathogens, and typically, the likelihood of HIV infection is estimated at nearly 0.3%. Post-exposure prophylaxis (PEP) for HIV was introduced in the 1990s and it is currently being used for both occupational and non-occupational exposure. The low uptake of PEP among health care workers has been reported in numerous studies. The present review aimed to synthesize evidence on the level of exposure, incident notification, uptake, and adherence to PEP guidelines in Sub-Saharan Africa.

Methods: The comprehensive search was performed in databases including PubMed through MEDLINE, EMBASE, Google scholar, the African Journals online, the African Index Medicus, the search period run from 1990 to July 2021. A total of 1693 studies were identified and 29 were included in the meta-analysis. The heterogeneity was assessed using I^2 statistics. Finally, the pooled rates and 95% CI were calculated using a random-effect model due to the high observed heterogeneity. Comprehensive Meta-Analysis version 3 was used for the analysis.

Results: A total of 26 studies were included for exposure to HIV infection, the pooled exposure rate was 41% (95%CI, 34%-49%); $I^2=97.07%$ and a p -value < 0.001 ; nine studies for incident notification with a pooled reporting rate of 47% (95%

CI, 33%-62%); $I^2=94.86\%$ and a p-value <0.001 . The uptake of PEP was synthesized within 27 studies, with an overall uptake rate of 38% (95% CI, 26%-51%); $I^2=96.54\%$, and a p-value <0.001 . The adherence to treatment included 13 studies with adherence rate of 49% (95% CI, 36%-62%); with $I^2=95.06\%$ and a p-value <0.001 . There was a high variation in adherence across countries and years. The most barriers to PEP uptake included perceived low risk of HIV infection, side effects of ART, reluctance to get tested for HIV, and client's seronegative results.

Conclusion: Occupational exposure to the risk of HIV transmission is high in Sub-Saharan Africa. The willingness to report the incident remains low and engagement in PEP is still low with poor adherence to preventive therapy and follow-up. Interventions are needed for counseling and sensitization of health care workers on the risk prevention and the need for PEP. Further studies are needed for a deep understanding of the factors behind the low uptake and the development of a friendly acceptable ART combination for PEP.

107. Urogenital pathogens causing pyuria in clinically diagnosed UTI patients in selected sites in Tanzania: The need of increasing clinical suspicious index in culture negative UTI patients

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Co-authors: Benson R. Kidenya, Benard Okamo, Donald N. Miyaye, Martha F. Mushi, Stephen E. Mshana, HATUA Consortium

Background: Urogenital pathogens such as *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *Mycoplasma genitalium* and *Trichomonas vaginalis* have been reported to cause pus in urine, however are not routinely cultured from urine samples in many laboratories. This has led to the delay in diagnosis and mis-management of these patients which lead to complications like cervicitis, urethritis, infertility pelvic inflammatory disease and urosepsis. Here we report the magnitude and factors associated of these urogenital pathogens in clinically diagnosed UTI patients from three regions of Tanzania.

Methodology: This was a cross sectional study involving 227 archived urine samples from patients with symptoms of UTIs that were positive for leucocyte esterase but negative culture results. The urogenital pathogens were detected using pathogen specific PCR. Data were cleaned and analyzed using STATA version_15.

Results: The median age of patients was 31 [IQR 23 – 51] years and majority 174 (76.7%) were female. Two thirds of patients had history of antibiotics use two weeks prior to recruitment 154 (67.8%). Overall, at least one urogenital pathogen was detected in 62 (27.3%) of urine samples (*Neisseria gonorrhoea* 25 (11.0%), *Trichomonas vaginalis* 24 (10.6%), *Mycoplasma genitalium* 13 (5.7%) and *Chlamydia trachomatis* 11 (4.9%). Ten (16.1%) samples had more than one pathogen. Female (OR 2.4; 95% CI: 1.04 – 5.49; P 0.039) and having history of using antibiotics in the past two weeks (OR 1.9; 95% CI: 1.04 – 3.60; P 0.036) independently predicted the presence of urogenital pathogen.

Subtheme 3: Non-communicable diseases, mental health and environmental risks, substance abuse including narcotic drug abuse and harmful use of alcohol, tobacco, global deaths and injuries from road traffic accidents.

108. Strategies, challenges and opportunities for addressing drugs and substance abuse: A cross-sectional survey in selected counties in Kenya

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Co-authors: Janet Masaku¹, Henry Kanyi¹, Sylvie Araka¹, Collins Okoyo¹, Vincent Were², Charles Mwandawiro¹ & Doris Njomo¹

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Introduction: Drugs and substance abuse is one of the most pervasive problems in Kenya placing a great economic, social and health burden on the society. If left unaddressed, the country risks losing generations and development opportunities as resources are diverted to address the problem. Therefore in lieu of the complexities of drugs and substance abuse, difficulties and cost of treatment, development of effective treatment and prevention programs is a crucial part of a public health system. This study sought to identify strategies that can be embedded in the health systems framework of Kenya for prevention and management of drug and substance abuse.

Methods: The abstract reports qualitative findings from a cross-sectional mixed method study conducted between 2017 and 2018 in four counties; Isiolo, Kajiado, Murang'a and Nyamira selected following a review of KEMRI Cluster Coordinators reports of priority research needs. Separate in-depth interviews were conducted with purposively selected; previous users (64), current users (127), opinion leaders (64), county officials (21) and health workers (64). Data was transcribed, translated and analyzed manually by identified thematic areas and by a statistical computer package, QSR NVIVO 12.

Results: The identified strategies were: self-driven interventions; social support; law enforcement and rehabilitation. Self-driven interventions reported were reduced consumption, keeping busy and off bad company with highlighted challenges of; peer pressure, withdrawal symptoms and idleness. The respondents suggested withdrawal management, job creation and counselling as measures to curb abuse of drugs and substances. Social support through love, acceptance and social protection provided by family, community, faith-based and non-governmental organizations was reported helpful amid challenges such as stigma, familial problems and joblessness. Awareness creation, counselling and economic empowerment were mentioned as important for social support. Law enforcement through arrests, prosecution and disruption of drug distributions was reported as an important strategy with barriers related to corruption, poor community-police relationship and lack of clear laws. Opportunities for addressing the barriers were; community involvement, stakeholders' partnerships and devolving NACADA functions. Rehabilitation was another identified strategy although lack of facilities and human resource to provide such services would require prerequisite funding.

Discussion and Conclusion; The identified strategies are effective in management and control of drug and substance abuse. A multi-sectoral approach is however needed to support and strengthen the strategies to curb the risk of social, economic and health crisis related to drugs and substance abuse in Kenya.

Key words: Drug and substance abuse, strategies, challenges and opportunities

109. Acute Malnutrition among Children at Time of Cancer Diagnosis at a Paediatric Oncology Centre in South West Uganda

Corresponding Author: Jeanine Ndayisenga

Background: Acute malnutrition is a frequent comorbidity in children with cancer and is associated with poor cancer treatment outcomes. This study describes the prevalence of acute malnutrition and its predictors at time of cancer diagnosis at Mbarara Regional Referral Hospital (MRRH).

Methods: This was a retrospective chart review of children <15 years of age at diagnosis of cancer seen at the Children's Cancer Unit of MRRH between May 2017 and May 2019. Using a data extraction tool, information regarding demographics, anthropometry at admission and cancer diagnosis was extracted from the children's medical records. Descriptive statistics and logistic regression analysis were used to determine the prevalence and patterns of acute malnutrition among children at diagnosis of cancer and the factors associated with acute malnutrition, respectively. The study was approved by the Mbarara University of Science and Technology Research and Ethics Committee.

Results: One hundred and thirty-three children were included in the study with a mean age of 6.6 years (SD 3.9). 54.9% of the children were male. Overall, 46 (34.6%) of subjects had acute malnutrition at time of cancer diagnosis. Of these, 25 (54.3%) had moderate acute malnutrition and 21/46 (45.7%) had severe acute malnutrition. The factors independently associated with acute malnutrition after multivariate logistical regression analysis were age >5 years ($p < 0.0001$) and reduced appetite ($p = 0.002$).

Conclusion: Acute malnutrition is common among children with cancer at diagnosis, especially in older children and those reporting poor appetite. Nutrition assessment and care should be incorporated into routine childhood cancer care to improve cancer treatment outcomes.

Key words: Acute malnutrition, childhood, cancer, Uganda

110. Cervical cancer screening among Women of Reproductive Age 25-49 years at Kitale County hospital, Kenya

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Co-authors: Kevin Lomuria, Hudson kigen, Sammy Masibo

Affiliation: Field Epidemiology and Laboratory Training Program (FELTP), Nairobi, Kenya, Department of Health Transnzoia county, Kenya

Background: Globally, 1 out of 6 deaths (all deaths) is due to cancer, with cervical cancer being the second most common cancer among women in Kenya. In 2018, WHO launched a global strategy towards the elimination of cervical cancer by 2030. Despite all these efforts, Kenya has only achieved 16% in cervical cancer screening among women aged 30-49 years. Trans Nzoia as a county so far has only achieved 2% which is way below the national achievements and WHO targets. Early diagnosis has been linked to prompt management. The study will therefore inform the management on the status of cervical cancer screening at the county referral hospital.

Methods: A retrospective descriptive study design was adopted to review data for the period July to December 2020. Data was obtained from the cancer screening registers MOH 262 and 429, reviewed, analyzed on excel and presented in proportions, narratives and tables.

Results: Of all the respondents, 94% (n=926) were seeking services for the first time. 0.61% (n=6) of the women screened had suspicious lesions for cervical cancer. Of the 6, 3 had lesions that were eligible for biopsy. Only one screening method VIA/VILLI was being used.

Conclusion: Generally, most women present to the clinic with advanced lesions. Use of VIA/VILLI may lead to many false negatives due to its low sensitivity. The study findings are useful in the fight against NCDs towards achieving SDG 3.

Recommendation: Cervical cancer screening awareness be upscaled, use of more than one single screening method, more screening points to be initiated in the county, Advocacy on enrollment in social insurance schemes among the public to cater for expensive health tests

Key words: Cancer; Kenya; cervical cancer; cervical cancer screening

111. Comparison of risk factors between people with type 2 diabetes and matched controls in Nairobi, Kenya

Corresponding Author: Anthony Muchai Manyara

Co-author: Elizabeth Mwaniki, Cindy M Gray, Jason M.R, Gill

Background: Type 2 diabetes (T2D) is on the rise in Kenya and prevention measures are needed. Understanding T2D risk factors of diabetes risk in Kenya is important for development of appropriate prevention interventions. This study aimed to identify T2D risk factors in Nairobi, Kenya.

Methods: A case-control study comprising of 70 (53% women) recently diagnosed T2D cases who were age-, sex and socio-economic status-matched to normoglycemic controls (1:1) was conducted. Data was collected on lifestyle factors, anthropometrics, body composition and handgrip strength and analysed using logistic regression models, adjusted for covariates.

Results: A standard deviation (SD) increase in height was associated with lower odds for T2D (adjusted odds ratio (AOR)=0.34 (95% confidence intervals [CIs] 0.17, 0.66)). Each SD increase in fat-free mass was associated with lower T2D odds (adjusted odds ratio (AOR)=0.42 (0.24, 0.75)). Grip strength was inversely associated with T2D (AOR=0.20 (95% CI 0.08, 0.45)) per SD increase. BMI was not associated with T2D, and the mean BMI was a normal weight in men. However, each SD increase in waist-to-hip ratio was associated with over two times higher odds of T2D (AOR=2.28 (95% CI 1.38, 3.79)). Having a first degree relative with diabetes was associated with higher odds of T2D (AOR=3.32 (1.27, 8.68)). Physical activity was not associated with T2D. Cases reported higher intakes of fruits and vegetables, and a lower intake of sugar than controls.

Conclusions: Central obesity, rather than BMI, may have more utility for T2D risk stratification in Kenya, and interventions that increase muscle mass and strength, as well as support weight loss, may be useful for T2D prevention in this and other SSA populations. However, more evidence is needed to determine whether low muscle mass, strength and height are causally related to T2D risk and/or are indicators of adverse early-life environment.

112. Computed tomography scan aspects of trauma of the face at Kira Hospital in Bujumbura: a retrospective study

Corresponding Authors: Manirakiza S

Objective: The aim of this retrospective study is to describe the epidemiological profile and the CT scan aspects of traumatic injuries of the face in patients who visited the department of Radiology at Kira Hospital.

Methods: We collected epidemiological data and CT scans from 384 patients of all ages included over a period of 2 years from December 2018 to November 2019 was used. The study was carried out in the Imaging Department of KIRA HOSPITAL. In the study, we only considered 104 patients who underwent a CT scan of the head with at least one lesion of the facial mass, whether or not associated with other cranio-encephalic wounds.

Results: Among the 384 patients with traumatic injuries received for head trauma, 104 of them (27.1%) presented facial damage and were considered for further analysis. The average age of the patients was 32.02 years, with extremes of 8 months and 79 years. In this study, 87 of the patients (83.6%) were male. The traffic accidents were the most common circumstance found in which facial trauma occurred (76% of cases). These injuries were accompanied by at least one bone fracture in 93.3% of the cases. Cases with fractures of more than 3 facial bones appeared in 40.2% of the cases and those with fractures of 2 to 3 bones appeared in 44.6% of the cases. The midface was the most common site of the fracture found in 87.6% of patients. Fractures of the orbital wall were noted in 58.8% of the cases and the jawbone was the site of fracture in 51.5% of the cases. In the vault, the fractures involved the extra-facial frontal bone for 36.1% of the cases and temporal bone for 18.6% of the cases. Cerebral contusion was found in 41.2% and pneumo-encephaly in 15.5% of the cases. Extradural hematoma was found in 16 patients and subdural hematoma was found in 13 patients.

Conclusion: CT scan is an available diagnostic tool of choice in facial trauma patients. Most of them are young patients and presented with multiple fractures localized in the middle level of the face with concomitant involvement of the brain. A systematic search for concomitant lesions in the brain should be done because of their high frequency.

Key words: Computed tomography-scan; Traumatism; Face injuries

113. Depression and Associated Factors among Medical Residents in Dar Es Salaam, Tanzania: A Cross Sectional Study

Corresponding Authors: Godfrey Magoti

Introduction: Depression affects medical residents more than the general population across the world. The objective was to assess the prevalence, severity, and associated factors of depression among medical residents in Dar es salaam, Tanzania.

Methods: A cross-sectional study was done from 3 institutions in Dar es Salaam, Tanzania. Using a self-administered questionnaire and American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition criteria for depression. The prevalence of depression, severity, and associated factors were analyzed.

Results: The prevalence of depression among medical residents in Dar es Salaam, Tanzania was 4% (8/201). The severity of depression among the eight participants ranges from mild 12.5%, moderate 50%, moderate-severe 25%, and severe 12.5%. Only working hours more than 72 hours per week was statistically significant (OR 7.07, 95% CI 0.85 – 58.58, P = 0.036). Several other factors were not statistically significantly associated with depression.

Conclusion: The rate of depression among medical residents in Dar es Salaam, Tanzania is significant. Institutions with residency programs have to address depression as a problem. Furthermore, studies are needed to assess the factors thoroughly.

114. Dietary consumption patterns and development of hypertension among rural and urban population of Kisii County, Kenya

Corresponding Author: Alex Ontiri

Co-author: Dr. Harun Kimani

Background: Hypertension, a primary component of cardiovascular diseases, has been a major cause of morbidity and mortality worldwide because individuals are not able to prevent risk factors to its development. Rising cases of hypertension in Sub Saharan Africa have been attributed to undiagnosed, untreated and inadequately treated hypertension. The prevalence however varies based on rural and urban population residences and risk factors. The risk of developing hypertension is associated with diet composed of high content of saturated fats, salt and trans-fats, low fruit and vegetable intake. Limited studies have been done to compare diet uptake and development of hypertension in rural and urban areas in order to have specific, targeted prevention measures. This study therefore called for the need to determine dietary consumption patterns and development of hypertension among urban and rural populations of Kisii County.

Methodology: Residents aged 30-69 years, from urban and rural population of Nyaribari Chache Sub County, Kisii County were sampled resulting in 490 respondents. Random sampling technique was used and all who met the inclusion criteria were interviewed. Statistical Package for Social Scientists (SPSS) Version 21 was used to analyze data.

Results: The prevalence of hypertension for the sampled population was 44.668%; for urban 43.598% and 44.134% for rural. Frequency of fruit consumption (p=0.002), fruit servings in a typical week (p=0.018), amount of salt intake (p=0.006) and significance of salt levels (p=0.032) were statistically significant. The population also depicted a poor diet uptake of only one fruit in a typical week (25.7% urban, 30.5% rural), a prior indicator of the existence of a relationship between the predictor and the predicted variables.

Conclusion: The study therefore concludes that residents residing in rural populations should be empowered with nutrition education on prevention and early detection and management practices of hypertension which will result in a healthy lifestyle.

115. Drug management of hypertensive patients hospitalized at the Kamenge University Hospital in Burundi

Corresponding Author: Eugène Ndirahisha

Co-author: Elysée Baransaka

Aim: To evaluate the drug management of essential hypertension at the Kamenge University Hospital (KUH).

Patients and Methods: This was a prospective descriptive study of drug prescriptions in patients hospitalized for essential hypertension in the departments of Internal Medicine, Surgery, Obstetrics and Gynecology and Emergency at KUH from October to March 2018.

Results: Among 3506 hospitalized patients, 127 had essential hypertension, i.e., 3.6% of cases. One hundred of them (78.7%) had a known history of hypertension. The mean age was 54 years with a sex ratio of 1.3 in favor of females. The age group most affected by hypertension was 50 to 60 years. People with no occupation were the most represented (36.22%), followed by farmers (20.47%) and civil servants (16.54%). The major cardiovascular risk factors were old age (63.7%), male sex (43.31%), alcohol (40.9%), diabetes (38.58%) and smoking (20.47%). The drugs used were central-acting antihypertensives (59.05%), diuretics (44.88%) and calcium channel blockers (43.3%). The majority of patients were on monotherapy (44.88%).

Conclusion: Essential hypertension was common in the inpatient setting although the majority of patients were aware of their condition. Patients were relatively young and risk factors were dominated by alcohol abuse and diabetes. Prescription was mainly monotherapy with central antihypertensive drugs.

Key words: Essential hypertension, prescription, drug, Burundi.

116. Efficacy of Various Methods of Pesticides Reduction and Degradation Processes

Corresponding Authors: Dr. Joyce G. N. Kithure

Co-authors: Mr. Patrick Kinyua Ajuliu, Mr. James Mungai

Abstract: Pesticides are substances that are meant to control pests. In this research, the investigation of the photo-degradation of pentachlorophenol (PCP) and Dimethoate (DM) pesticides, using incandescent bulbs and fluorescence light on spinach leaf surface was done, as well as determining the effectiveness of washing methods in the removal of Chlorothalonil and lambda-cyhalothrin pesticides residues in washing solution. The half-lives of both molecules ranged between 0.007306 to 0.076 days for PCP in incandescent bulb and 0.078 to 0.093 days in fluorescence light, while the range of half-life was 0.037 to 0.00446 and 0.0023 to 0.013 days for DM in incandescent bulb and fluorescence light respectively. On the other hand, 0.001% KMnO_4 washing solution was discovered to be the most effective washing solution at $65.67 \pm 3.73\%$ to $70.23 \pm 3.82\%$ removal of chlorothalonil and $81.68 \pm 3.03\%$ to $85.98 \pm 4.19\%$ for lambda cyhalothrin. Tap water was the least effective pesticides remover, ranging from $10.23 \pm 2.00\%$ to $11.43 \pm 0.21\%$ for chlorothalonil and $42.34 \pm 2.47\%$ to $48.43 \pm 1.91\%$ removal of lambda cyhalothrin. 0.001% KMnO_4 gave the highest degradation rate of $86.63 \pm 0.02\%$ to $89.01 \pm 1.03\%$ for lambda cyhalothrin and $81.52 \pm 1.02\%$ to $84.08 \pm 1.78\%$ chlorothalonil.

Key Words: Pesticides, Pentachlorophenol, Dimethoate, Chlorothalonil, Lambda-cyhalothrin, Incandescent bulbs, Fluorescence light, Spinach and washing solutions.

117. Emery Evaluation of Treatment Methods for Solid Medical Waste in Bujumbura-Burundi

Corresponding Authors: Edouard Niyongabo

Introduction: Treatment of solid medical waste (SMW) is a complex task requiring the proper practices with specific treatment methods corresponding to each type of SMW during pretreatment and final treatment (ICRC, 2011). This study targeted three treatment methods identified as the main used by the majority of health care facilities (HCFs) and treating a large amount of SMW (Bikwemu et al., 2014). It aimed 1) to evaluate the current practices by calculating the emery investment and emery costs that are required to treat one ton of SMW through the three treatment methods and 2) to evaluate and compare better technologies and provide policy suggestions for the final treatment of SMW in Burundi.

Materials and Methods: This study used the emery methodology to evaluate the relative efficiencies of three treatment methods used for to treat SMW in twelve HCFs in Bujumbura such as low temperature incinerator, organic pit and landfill referring to the weight for machine, work hours for machine, life hours for machine, life time for treatment method, total quantity used for each item, work hours for worker, money paid for labor. The first step was the definition of an evaluation boundary using the energy systems language, and the second step was corresponding to the emery calculation. The raw data (annual use) was calculated for each item in these three treatment methods for construction and operation phases. It compares the emery use to treat one ton of SMW for low temperature incinerator and landfill

Results and Conclusion: The total emery input was $1.36\text{E}+20$ seJ/yr, $3.54\text{E}+17$ seJ/yr, and $1.681\text{E}+18$ seJ/yr for low temperature incinerator, landfill and organic pit, respectively. The emery and cost invested for treatment methods were divided as follows: $1.06\text{E}+17$ seJ/ton/yr, $1.58\text{E}+14$ USD/ton/yr for low temperature incinerator, $3.04\text{E}+14$ seJ/ton/yr, $2.12\text{E}+14$ USD/ton/yr for landfill, $1.04\text{E}+15$ seJ/ton/yr $2.27\text{E}+13$ USD/ton/yr for organic pit. Rapid improvement of organic pit by ensuring its maintenance, the gradual replacement of low temperature incinerator by high temperature incinerator with air control pollution and landfill by sanitary landfill are highly recommended by respecting its maintenance (fence, roof and monitoring evaluation) for reducing the risk.

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118. Enhancing Healthcare Workers' Capacity in Cancer and other Non-Communicable Diseases (NCDs) Care in Sub-Saharan Africa (SSA) through e-Health Innovations: A Case of International Cancer Institute (ICI), Eldoret, Kenya

Corresponding Author: Gloria Kitur

Co-authors: Emmah Achieng, Carolyne Chemweno, Chite Asirwa

Background: Sub-Saharan Africa (SSA) hosts 11% of the world's population yet bears 24% of the global disease burden with only 3% of the world's health workforce at the frontline. There is a disproportionate burden of disease and extreme shortage of healthcare workers for specialized care. The new threat of NCDs including cancer is worsened by the challenge of infrastructure, access to care and health workforce capacity. E-health bridges the gap of formal education and training through telemedicine and virtual e-learning platforms.

Methods: International Cancer Institute (ICI) in its efforts to expand education, clinical care and training opportunities in cancer (and other NCDs) control and research across SSA proposed to leverage on telemedicine to build capacity of Health Care Providers (HCPs) in the COVID era. Through bi-weekly virtual multi-disciplinary tumour boards, on-line preceptorship training programs in cancer and other NCDs care as well as tele-consultations between healthcare providers across Kenya and SSA, access to quality and timely cancer care was evaluated.

Results: Between May 2020 and April 2021, ICI conducted 95 virtual multi-disciplinary tumour boards attended by 7,483 health care workers from 21 countries across the world; 16 from countries in SSA. ICI also conducted 27 unique training programs in cancer and other NCDs care on its online e-learning platform which attracted 578 participants from across the globe, 95% of which were from SSA. The distribution of the training participants was such that 77% were clinical healthcare providers including specialists while 17% were non-clinical health care workers. The allied healthcare workers accounted for 6%. The online training platform has provided the opportunity for HCPs to be trained from their locality thus bridging the gap of cost and distance in seeking to advance their training which would have otherwise been a limitation. Some participants from rural facilities and locations experienced challenges with poor internet thus future trainings could incorporate phone airtime/internet bundle support for selected cases. The innovative e-learning platform enabled more healthcare workers across SSA to be reached without the limitation of restricted classroom sessions. Post-training skills assessment on patient care was conducted for clinical staff in sampled facilities in Kenya.

Conclusion: Capacity building of HCPs in SSA in cancer and other NCDs care and control goes beyond formal training. Ongoing peer to peer mentorship and on-job skills training are effective in building HCP capacity in improved standard of care in cancer and other NCDs. Leveraging on e-health solutions in resource limited settings contributes to positive patient outcomes.

119. Is Finnish Diabetes Risk Score (Findrisc) Useful In Screening Type 2 Diabetes in African Setting? An Experience in Young-Adults from Urban Tanzania

Corresponding Author: Evangelista Malindisa

Background: The prevalence of type 2 diabetes mellitus is on the rise globally, Tanzania is not spared. Affordable and effective screening tools are needed for early diagnosis and prevention of these epidemics. This study aimed to evaluate the utility and applicability of the Finnish Diabetes Risk Score as the screening tool in population of young adults from an urban setting in Tanzania.

Methods: A cross sectional community-based study was conducted among young adults aged 18-35 years. Demographic data was collected, anthropometric measurements, blood glucose and lipid profile measurements were done using standard operating procedures. The Finnish diabetes questionnaire was used to compute finish diabetes risk scores for each participant.

Results: The median age of the study participants was 21 (IQR 19-27), and more than half of the study participants were females (60.23), 32.8% of participants had scores of 7 and above and were regarded to have at least slightly elevated risk of developing T2D in 10 years' time. Sensitivity and specificity of FINDRISC in screening Diabetes mellitus using 2-hour postprandial blood glucose as a gold standard was 39.10% and 69.20% respectively, with 0.54 Area under the ROC curve (95% CI 0.47, 0.61). FINDRISC significantly correlated with fasting blood glucose ($r=0.12$, $r^2=0.01$, $p=0.05$), diastolic blood pressure ($r=0.19$, $r^2=0.03$, $p=0.02$), mean arterial blood pressure ($r=0.13$, $r^2=0.01$, $p=0.036$), low density lipoprotein cholesterol ($r=0.19$, $r^2=0.03$, $p=0.005$), and waist to hip ratio ($r=0.34$, $r^2=0.11$, $p=0.001$).

Conclusion: This study provides insights on the potential use of FINDRISC as a simple and non-invasive screening tool for metabolic syndrome-related ailments among young adults in Africa but not diabetes mellitus. Longitudinal studies, with context-specific modifications of this tool, are suggested to ascertain its predictive value for future type two diabetes and other non-communicable diseases in populations of resource limited settings.

120. Factors associated with adherence to anti-diabetic medication among persons with diabetes during the COVID-19 pandemic, Uganda, 2020**Corresponding Author:** Ignatius Wadunde**Introduction:** Persons with diabetes are at higher risk of developing severe COVID-19 disease. Non-adherence to diabetes treatment leads to an increased risk of complications and mortality. Factors associated with adherence to anti-diabetic medication among persons with diabetes during the COVID-19 pandemic in Uganda were assessed.**Methods:** A cross-sectional study among 228 persons with diabetes in four diabetic clinics during September 01 - 30, 2020, was conducted. Diabetic patients aged ≥ 18 years who had been on diabetic treatment for \geq one month were considered. Adherence was defined as not missing any dose of medication seven days prior to the interview and was assessed using self-reports by patients. Data on socio-demographic characteristics and adherence related factors were collected. Data was analysed using Epi-info software.**Results:** The mean age of the respondents was 53 years (Range: 12 - 87). 47.8% (109/228) of the respondents were in the 41-60 yr age-group; and 61.4% (140/228) were subsistence farmers. Overall adherence was 68.9% (157/228), and the commonest reasons for missing doses were drugs running out at home 62% (44/71), forgetfulness 23% (16/71), and transport challenges 5.6% (4/71). Factors associated with adherence were receiving injections only as the form of anti-diabetic medicine (AOR=0.2, 95% CI: 0.04-0.89) and experiencing any side effects of the anti-diabetic medicines (AOR=2.8, 95% CI: 1.44-5.32).**Conclusion:** The level of adherence to anti-diabetic medication was sub-optimal (68.9%) and the commonest reasons for missing doses were drugs running out at home, forgetfulness and transport challenges. Adherence was associated with the form of medicines being received and the side effects of the drugs. There is need to ensure drug availability, send reminders, stock diabetes medicines at lower-level facilities, adherence counselling to improve adherence to diabetes treatment.**121. Validity and acceptability of the Kiswahili-paediatric gait, arms, legs and spine (pGALS) screening tool at a tertiary referral hospital in Kenya****Corresponding Authors:** Dr Jacqueline Evarist Kawishe**Co-authors;** Dr Angela Migowa, Dr Anthony Ngugi**Background:** A reason for the severity of presentation and mortality from rheumatic conditions among children is the delayed presentation to a paediatric rheumatologist. The paediatric gait, arms, legs, and spine (pGALS) musculoskeletal (MSK) screening tool was developed to encourage early detection of these conditions. Translating and validating the pGALS in Kiswahili will be beneficial to many regions.**Methods:** We conducted a diagnostic utility study. The three English-pGALS screening questions were translated into Kiswahili using the World Health Organisation standard of translation and manoeuvres were performed by a 'copy me' approach. Children aged 5–16 years seen at the Accident and emergency department and family medicine clinic who spoke Kiswahili and had symptoms suggestive of an MSK condition were enrolled using systematic random sampling. Those already on follow-up with the paediatric rheumatologist were excluded. The participants had the Kiswahili-pGALS and gold-standard review (Paediatric rheumatologist) on the same day. Guardians were asked questions on acceptability with regards to the time taken to perform the tool and level of discomfort. Those with possible rheumatic conditions were offered follow-up.**Results:** We enrolled 100 children with a median age of nine years (IQR 7–11). The sensitivity and specificity of the Kiswahili-pGALS screening tool were 76.8% (CI 63.6–87.0%) and 40.0% (CI 23.9–57.9%). The diagnostic accuracy was 62.7% (CI 52.1–72.1%) and the ROC area was 0.58 (CI 0.48–0.68). The median time taken to perform the Kiswahili-pGALS was 5.0 minutes (IQR 3.5-6.0 minutes). Guardians (90%) found the tool to have 'no' to 'some' discomfort.**Conclusions:** The Kiswahili-pGALS can be adapted for use in the referral process of children with MSK signs and symptoms to a paediatric rheumatologist.**122. Histopathological evaluation of chronic rheumatic mitral valve stenosis: the association with clinical presentation, pathogenesis and management at a national cardiac institute.****Corresponding Author:** Reuben Mutagaywa**Co-authors:** Amos Mwakigonja, Pilly Chillo, Appolinary Kamuhabwa, Maarten Cramer, Gideon Kwesigabo, Steven Chamuleau**Aims:** The histopathology of mitral valve (MV) tissues have been previously reported in necropsy and retrospective studies. We prospectively studied the histopathological changes in rheumatic mitral stenosis using advanced histologic techniques and corroborated these with clinical presentation, disease pathogenesis, and management.**Methods:** Surgically excised rheumatic stenotic MV tissues from 54 Tanzanian patients were studied. These were examined using hematoxylin-eosin, von Kossa staining, and immunohistochemistry.

Results: The median (range) age of the patients was 39 (14 – 57) years with a female 34 (63%) predominance. With hematoxylin-eosin, 37 (68.5%) specimens showed fibrinoid degeneration (FD), 44 (81.5%) polymorphonuclear leucocytes (PMNL)/lymphocytes, 6 (11.1%) Aschoff nodules, 30 (55.6%) calcification, and 39 (72.2%) fibrosis. Thirty-five (64.8%) specimens were positive to von Kossa. The proportions of specimens positive for CD3, CD20, CD68, and CD8-staining cells were 46 (85.2%), 35 (64.8%), 39 (72.2%), and 8 (14.8%) respectively. Apparently, valvular calcium was high among: older patients, males and those with higher trans-MV gradient. A statistically significant association existed between the degree of inflammatory cellular infiltration and valvular calcification as well as between the presence of FD and recent rheumatic fever, PMNL/lymphocytes infiltrate and disease of < 10 years, and fibrosis and the absence of atrial fibrillation. C-reactive protein and anti-streptolysin titres were statistically significantly high in both CD20 and CD8 staining cells.

Conclusions: The high MV calcium level among older patients, male, and those with higher trans-MV gradient; the association between cellular infiltration with valvular calcification; and the association between clinical parameters with histopathological-immunohistochemical studies provides new insight to disease presentation. Our findings compare well with those from other countries suggesting similar pathogenesis and thus intervention modalities. This is the first study on mitral valve histopathology to be reported from Africa.

123. Hyper-prevalence of sub-patent *Plasmodium falciparum* infections in a rural area of western Kenya with declining malaria cases

Corresponding Authors: Kevin Omondi Ochwedo

Background: The effectiveness of passive case detection (PCD) for malaria infection surveillance and control depends on the detection threshold of microscopy. Thus, patients with microscopically undetected (sub-patent) infections will normally miss treatment. This study determined the magnitude and basis of undiagnosed, sub-patent malaria infections with the aim of reducing the fraction of patients with false-negative malaria diagnosis results.

Methods: This study employed a cross-sectional, health facility-based, survey that enrolled a total of 367 patients who had sought malaria treatment at a rural health facility in Homabay County. The magnitude of the sub-patent infections was accomplished by comparing period prevalence detected by microscopy versus that detected using real-time polymerase chain reaction (RT-PCR). The effect of long-lasting insecticide-treated net (LLIN) usage and involvement in outdoor activities were also assessed.

Results: A total of 166/367 (45.23%) samples was confirmed positive for *P. falciparum* by RT-PCR. Out of these, 14.71% (54/367) were positive by microscopy whereas 30.52% (112/367) were sub-patent. This implies that 67.47% (112/166) of malaria positive cases were missed and untreated. Compared to microscopic infections determinants, females and LLIN users had slightly high odds (1.7 and 0.59) of harbouring sub-patent infections. Patients involved in nocturnal outdoor activities and use LLINs had high chances of having sub-patent infections (OR=1.25).

Conclusion: This study revealed a high prevalence of sub-patent malaria infections, which is a potential precursor for sustained residual malaria transmission. We recommend routine augmenting of microscopic examinations with Ultrasensitive diagnostic techniques to justify the WHO's strategy focusing on early detection and prompt treatment of patients.

124. In vitro efficacy of two microbial strains and physicochemical effects on their aflatoxin decontamination in poultry feeds

Corresponding Author: Zakia Tebetyo

Description: The efficacy of two microbial isolates, *Bacillus* spp. (B285) and *Saccharomyces* spp. yeast strain (Y833), in reducing aflatoxin concentration in poultry feeds in comparison with the commonly used commercial chemical binder, bentonite, was investigated using the VICAM[®] fluorometer. The influence of the poultry feed matrix, pH (4.5 and 6.5), and temperature (room temperature, 37 and 42°C) on the aflatoxin reducing activity by the two microorganisms was also explored. All microorganisms and bentonite reduced aflatoxins by over 74% of the original concentration. Bentonite registered the highest reduction at 93.4%; followed by Y833 (83.6%), then the combination of Y833 and B285 (77.9%); and lastly B285 (74.9%). Temperature and pH did not have significant effect on the performance of the biological agents and bentonite. The aflatoxin reducing activity was lower in presence of feeds compared to that in phosphate buffered saline except for Y833. The yeast strain was more effective than the bacterial strain in reducing the aflatoxin levels; however, both are promising strategies for countering the aflatoxin challenges in animal feeds. In response to the advocacy for use of biological control agents, there is need for more investigations to establish the safety of the microorganisms and the mechanism of aflatoxin decontamination.

125. Knowledge, attitude, and preparedness toward IPV care provision among nurses and midwives in Tanzania**Corresponding Author:** Ambikile**Co-authors;** Ohinishi, Sebalda**Background:** With increasing recognition of intimate partner violence (IPV) as a public health challenge, nurses and midwives are recognized as playing a crucial role in providing front-line healthcare services for IPV. This study aimed to assess knowledge, attitude, and preparedness related to IPV care provision in health facilities among nurses and midwives in Tanzania.**Methods:** A self-administered anonymous questionnaire survey was conducted.**Results:** A total of 702 of 1714 (41.0%) respondents in the Mbeya region participated in this study, and 490 completed questionnaires were included in the analysis. The proportion of respondents with high scores in IPV perceived knowledge, actual knowledge, attitude, and preparedness to provide care was 50.4%, 54.1%, 52.2%, and 50.2%, respectively. Gender, educational level, and work experience, and the use of IPV guidelines were significantly associated with high scores in IPV perceived knowledge ($P<0.001$), actual knowledge ($P=0.002$), and preparedness to provide care ($P<0.001$), but not attitude ($P=0.145$). Gender, educational level, and work experience, and receiving preservice IPV training were associated with high scores in IPV perceived knowledge ($P<0.001$) and preparedness to provide care ($P=0.018$), but not actual knowledge ($P=0.071$) or attitude ($P=0.223$). Gender, educational level, work experience, and in-service IPV training were associated with high scores in IPV perceived knowledge ($P<0.001$), actual knowledge ($P=0.033$), and preparedness to provide care ($P<0.001$), but not attitude ($P=0.072$).**Conclusion:** Attitudes against IPV care are a challenge. It is necessary to address concepts of IPV care and sympathy with potential and actual victims of IPV in pre- and in-service training in addition to providing recall-level knowledge.**Keywords:** Intimate partner violence, nurses, midwives,**126. Levels and correlates of physical activity and capacity among HIV-infected compared to HIV-uninfected individuals****Corresponding Authors:** Brenda Kitilya**Co-authors:** George PrayGod, Robert Peck, John Changalucha, Kidola Jeremiah, Bazil .B.Kavishe, Henrik Friis, Suzanne Filteau, Daniel Faurholt-Jepsen, Soren Brage, Mette Frahm-Olsen**Introduction:** Physical inactivity increases the risk of developing non-communicable diseases (NCDs). In Sub-Saharan Africa, HIV-infected report being less active compared to HIV-uninfected individuals. We assessed and compared the levels and correlates of objectively measured physical activity and capacity among HIV-infected ART naive compared to HIV-uninfected individuals in Mwanza, Tanzania.**Method:** We conducted a cross-sectional study among HIV-infected ART-naive and HIV-uninfected individuals frequency-matched for age and sex. As independent variables, data on socio-demographic, anthropometric measurements, CD4 counts, haemoglobin level, and C-reactive protein data were collected. Dependent variables, physical activity energy expenditure (PAEE) was assessed as measure of physical activity whereas sleeping heart rate (SHR) and grip strength were assessed as measures of physical capacity. Multivariable linear regression was used to assess correlates associated with physical activity and capacity.**Results:** 272 HIV-infected ART-naive and 119 HIV-uninfected individuals, mean age 39 years and 60% women participated in the study. Compared to HIV-uninfected individuals, HIV-infected had lower physical activity, PAEE (-7.3 kJ/kg/day, 95%CI: -11.2, -3.3), elevated SHR (7.7 beats/min, 95%CI: 10.1, 5.3) and reduced grip strength (-4.7 kg, 95%CI: -6.8, -2.8) implies poor physical capacity. In HIV-infected, low BMI, moderate-severe anaemia, low CD4 counts and high CRP were associated with lower physical activity and capacity. In HIV-uninfected individuals, abdominal obesity and moderate-severe anaemia were significantly associated with lower physical activity and capacity.**Conclusion:** HIV-infected ART-naive participants had lower levels of physical activity and capacity. Correlates of physical activity and capacity differed by HIV status. Participants with low CD4 counts, high CRP and HIV-related outcomes had lower levels of physical activity and capacity while HIV-uninfected individuals who were anaemic and obese had lower levels of physical activity and capacity. Management of HIV and related conditions needs to be provided effectively in health care facilities and interventions promoting physical activity in these populations will be of importance to improve their health.

127. Low level of knowledge about cervical cancer among Ethiopian women: A systematic review and meta-analysis

Corresponding Authors: Awoke Derbie

Co-authors: Daniel Mekonnen, Eyaya Misgan, Yimtubezinash Woldeamanuel, Tamrat Abebe

Introduction: Cervical cancer is one of the leading causes of morbidity and mortality among women in Ethiopia, often due to late disease diagnosis. The aim of this systematic literature review was to provide an overview of knowledge about cervical cancer in Ethiopian women.

Methods: We conducted a systematic review of peer-reviewed studies on the knowledge of cervical cancer. Articles published on knowledge about cervical cancer were systematically searched using comprehensive search strings from PubMed/Medline, SCOPUS and grey literature from Google Scholar.

Results: We included 26 articles published between 2013 and 2020 covering a total of 14,549 participants. The proportion of participants who had heard of cervical cancer varied from 4.6% to 87.7% with the pooled prevalence at 56% (95%CI: 47-66). Similarly, the proportion of participants who knew that HPV is the main causes of cervical cancer varied from 0 to 49.7% with the pooled estimate at 21% (95%CI: 13-30). Likewise, the pooled prevalence of identifying at least one risk factor, one symptom of cervical cancer and ever heard of cervical cancer screening was at 52% (95%CI: 39-64), 43% (95%CI: 26-60) and 39% (95%CI:24-55), respectively. The review revealed low levels of knowledge about cervical cancer in which the overall good knowledge about cervical cancer in this review was at 43% (95%CI: 33-53). On top of this, the pooled prevalence of previous screening practice was only at 14% (95%CI: 9-20).

Conclusions: There is an urgent need for more health education to provide sufficient and unbiased information to the general public about cervical cancer

128. Nurses' and midwives' awareness of intimate partner violence-related mental healthcare and associated factors in Tanzania

Corresponding Author: Joel Seme Ambikile RN, MSc,

Co-authors: Sebalda Leshabari MW, MPH, PhD, Mayumi Ohnishi RN, MPH, PhD

Description: Although intimate partner violence (IPV) is a significant public health problem in Tanzania, the country's system to provide IPV-related mental healthcare is not sufficiently prepared to respond to IPV care needs. This study aimed to assess nurses' and midwives' awareness of IPV-related mental healthcare and associated factors to encourage care provision. A cross-sectional, anonymous, self-administered survey was conducted among nurses and midwives in health facilities in the Mbeya region. Of 1,321 nurses and midwives in the region, 662 (50.1%) participated in the study, and the analysis included 568 (85.8%) responses without missing values. The median awareness score was 5 (range: 0-6), and 34.0% of the participants were aware of all six examined IPV-related mental health disorders. Separate logistic regression analyses were conducted for those working in hospitals and those working in health centres (HCs), assessing potential factors associated with nurses' and midwives' awareness of IPV-related mental disorders. High professional education (adjusted odds ratio [AOR]: 1.479; 95% confidence interval [CI]:1.009, 2.169; P = 0.045) and long work experience (AOR: 1.744; 95% CI: 1.161, 2.621; P = 0.007) were associated with high awareness of IPV-related mental disorders. For those in health centres, government ownership (AOR: 3.526; 95% CI: 1.082, 11.489; P = 0.037) and having a mental health focal/resource person (AOR: 3.251; 95% CI: 1.184, 8.932; P = 0.022) were associated with high awareness of IPV-related mental disorders. Appropriate distribution of mental health focal/resource persons is required for improving awareness of IPV-related mental healthcare provision among nurses and midwives in remote areas of Tanzania.

129. Optimal cut-offs of four anthropometric measures and their predictive ability of diabetes in a nationally representative Kenyan study

Corresponding Author: Anthony Muchai Manyara

Background: Type 2 diabetes (T2D) is one of the top non-communicable diseases in Kenya and prevention strategies are needed. Intervening to reduce obesity is the most common prevention strategy. However, black populations develop T2D at lower obesity levels and it is unclear which anthropometric cut-offs could provide the best predictive ability for T2D risk. This study, therefore, aimed to determine the optimal anthropometric cut-offs and their predictive ability of T2D.

Methods: The study included 2159 participants (59% women) aged 35-69 years from the Kenya STEPwise survey conducted in 2014. Four anthropometric measures – body mass index (BMI), waist circumference (WC), waist to hip ratio (WHR), and waist to height ratio (WHtR) – were used. Diabetes was defined as a fasting blood glucose of ≥ 7.0 mmol/l or a previous diagnosis for diabetes. Optimal anthropometric cut-offs and their receiver operating characteristics, such as the area under the curve (AUC), were computed.

Results: Overall, the optimal cut-off for BMI, WC, WHR and WHtR were 24.8 kg.m⁻², 90.0cm, 0.88 and 0.54. On disaggregation by sex, the optimal cut-off for BMI, WC, WHR and WHtR was 27.1 kg.m⁻², 87cm, 0.85 and 0.55 in women and 24.8 kg.m⁻², 91cm, 0.88, and 0.54 in men. Overall, WC (AUC 0.71 (95% confidence interval 0.65, 0.76)) and WHtR (AUC 0.71 (0.66, 0.76)) had a better predictive ability for T2D than BMI (AUC 0.68 (0.62, 0.73)).

Conclusions: WC and WHtR were better predictors of T2D than BMI and should be used for risk stratification in Kenya. A WC cut-off of 87cm in women and 91cm in men, or a WHtR cut-off of 0.55 in both men and women should be used to identify individuals at high risk of T2D.

130. Poisoning Assessment and Patients' Behavior Seeking Health Care within Urban and Rural Communities of Burundi.

Corresponding Author: Azarias Nkengurutse

Background: Poisoning continues to be a community health problem in East Africa and around the world. The negative behavior of patients in seeking health care leads to chronicity of diseases causing several preventable complications and an increase in the death rate. In Africa, poison control centers are lacking while the systematic data on poisoning is scarce.

Methods: The first study phase retrospectively investigated poisoned patients admitted to the internal medicine and pediatrics' emergency departments and patients hospitalized in intensive care units in King Khaled Medical Teaching Hospital, Karusi and Mpanda tertiary hospitals between July 2019 and July 2021. Data was collected through retrospective chart review of patients' medical records. The age, sex, type of poisoning, outcomes were described. Secondly, purposive sample of participants including local residents were interviewed from April through June 2021.

Results and discussions: During this period, 922 (5.90%) patients consulted for poisoning in internal medicine's emergency department and 853 (8.94%) children were admitted to pediatrics' emergency department. Among 1775 poisoned patients, 569 patients (32.05%) were hospitalized in intensive care units whereas 66.45% were followed up after emergency treatment, 27 (1.5%) patients died. The ratio of male to female was 1:1.25, their average age was 30.25 years. Poisoning attempt was lesser among urban residents (43.5%) as compared to rural community (56.5%). Unintentional poisoning accounted for 78.5% in pediatrics while it was lesser in adults (42%) in internal medicine. The prevalence of poisoning agents in internal medicine and in pediatrics, was, respectively: Medicine misuse (18.95%, 15%); pesticides exposure (16.70%, 12.91%); food poisoning (30.05%, 35%), traditional medicine intoxication (10.85%, 14%), ingestion of unknown substances (13%, 16.9%), Household products (3.5%, 7%), suicide attempts with hydrogen sulfur (6%, 0%). Clinically, patients had trouble breathing, nausea, vomiting, diarrhea and confusion. Among hospitalized patients, 18.65% developed kidney failure and liver problems. 85% delayed in consulting. Of 276 interviewed participants, 46% reported they experienced poisoning in their life. 65% consulted traditional healers. 24% consulted modern health professionals, 11% didn't consult.

Conclusion and Recommendations: There is a high incidence of food poisoning and ingestion of unknown substances in rural communities than in urban areas, in children than in adults and in women than in men. Raising awareness and establishing poisoning control centers is essential to prevent and control the threats associated with poisoning.

131. Prevalence and factors associated with major depression among female sex workers in post-conflict Gulu district, Uganda: a cross-sectional study

Corresponding Authors: Ouma Simple

Co-authors: Nazarius Mbona Tumwesigye, Rawlance Ndejjo, Catherine Abbo

Background: Female sex workers (FSWs) in conflict-affected settings are at greater risk of major depression. However, the epidemiology of major depression in this population remains understudied. We aimed to determine the prevalence and factors associated with major depression among FSWS in post-conflict Gulu district in Northern Uganda.

Methods: We conducted a cross-sectional study among 300 randomly selected adult female FSWS in Gulu district. We utilized a pre-tested semi-structured questionnaire embedded with MINI 7.0.0 to gather information from participants through face-to-face interviews. We collected data on socio-demographic characteristics, sex-work-related characteristics, alcohol and drug use, HIV status, and major depression. Then, data were entered into EPI INFO 7 and analyzed using logistic regression with the aid of STATA 14.0.

Results: The mean age (SD) of the participants was 26.4 (\pm 6) years, 57.7% attained primary education, 51.7% never married, and 42.1% were living with HIV. The prevalence of major depression was 47.7%. Likewise, majority of FSWS with major depression (91.0%) had severe (50.4%) or moderate (40.6%) depressive symptoms. Independently, life stress (adjusted OR = 10.8, 95%CI: 5.67–20.57), living with HIV (adjusted OR = 2.25, 95%CI: 1.25–4.05), verbal abuse (adjusted OR = 2.27, 95%CI: 1.27–4.08), and older age (adjusted OR = 1.06, 95%CI: 1.01–1.12) all showed positive associations with major depression. Conversely, provision of sexual services from clients' homes (adjusted OR = 0.50, 95%CI: 0.25–0.97), use of a non-barrier modern family planning method (adjusted OR = 0.44, 95%CI: 0.24–0.82), and daily intake of alcohol (adjusted OR = 0.50,

95%CI: 0.28–0.88) all showed negative associations with major depression.

Conclusions: There is a high prevalence of major depression among FSWs in post-conflict Gulu driven by older age and multiple sex-work related factors. The high prevalence of major depression underscores the need for government and development partners to urgently and adequately address the mental health needs of FSWs.

132. Risk factors for impaired renal function in HIV-infected and HIV-uninfected adults in north-western Tanzania

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Background: Although the burden of impaired renal function is rising in sub-Saharan Africa, little is known about correlates of impaired renal function in the region. We determined factors associated with estimated glomerular filtration rate (eGFR) and impaired renal function in HIV-infected and HIV-uninfected adults.

Methods: We undertook a cross-sectional analysis of data from 1947 adults at enrolment for a cohort study on diabetes and associated complications in HIV patients in Mwanza, north-western Tanzania. A structured questionnaire was used to collect data on sociodemography, smoking, alcohol, physical activity, antiretroviral therapy (ART) and anthropometry. We measured blood pressure, tested blood samples for creatinine, glucose, inflammatory markers and HIV, and performed Kato Katz for *Schistosoma mansoni*. Correlates of eGFR (mL/min/1.73 m²) and impaired renal function (eGFR<60mL/min/1.73 m²) were determined using linear regression and logistic regression, respectively.

Results: 655 (34%) participants were HIV-uninfected, 956 (49%) were ART-naive HIV-infected and 336 (17%) were HIV-infected adults on ART. The mean age was 41 years (SD12) and majority (60%) were females. Overall, the mean eGFR was 113.6 mL/min/1.73 m² but 111.2 mL/min/1.73 m² in HIV-uninfected, 109.7 mL/min/1.73 m² in ART-naive HIV-infected and 129.5 mL/min/1.73 m² in HIV-infected ART-experienced adults, and respective prevalence of impaired renal function was 7.0%, 5.7%, 8.1% and 6.3%. Correlates of lower eGFR were increasing age, higher socioeconomic status, unhealthy alcohol consumption, higher body mass index and diabetes mellitus. Anaemia was associated with 1.9 (95% Confidence Interval (CI):1.2, 2.7, p=0.001) higher odds of impaired renal function compared to no anaemia and this effect was modified by HIV status (p value 0.02 for interaction).

Conclusion: Impaired renal function is prevalent in this middle-aged study population. Interventions for prevention of impaired renal function are needed with special focus in HIV-infected adults and those with high socioeconomic status. Interventions targeting modifiable risk factors such as alcohol and weight reduction are warranted.

133. Role of knowledge and attitude in medical and dental students' regarding use of shisha.

Corresponding Author: Thomas Amuti

Background: Despite its harmful bodily effects, shisha smoking is increasing among the youth, including medical students. There is however paucity of data on the knowledge and attitude of dental and medical students towards shisha smoking in our local setting. This study aimed to investigate the same.

Methods: A total of 186 medical and dental students were approached for this study and data was collected using structured questionnaires. Ethical consideration was sought from Kenyatta National Hospital and University of Nairobi Ethics committee and informed consent from the participants. Data collected was analyzed using SPSS. Mann-Whitney and Kruskal-Wallis tests were run to test for statistical significance differences, and regression analysis was also run. Results were presented in tables and bar graphs.

Results: In the clinical dental group, majority of the respondents were female (72%), while in the other 2 groups, majority were males, 60%, in the pre-clinical group and 55% in clinical medical group. Forty-three respondents were dental students in their clinical years, 66 were pre-clinical medical and dental students, and 77 were medical students in clinical years. Most had an early exposure to shisha smoking due to peer pressure. They had poor attitudes towards shisha use, evidenced by prolonged duration of smoking, replacing of the shisha pot in a session and reluctance to stop smoking. Still, they portrayed good knowledge on the harmful effects of shisha. The students still smoked shisha, citing peer influence and addiction.

Conclusion: Our findings indicate that medical/dental students have good knowledge of shisha and its effects but portray a poor attitude towards its use.

134. Snakebite Envenomation in Kenya: A Descriptive Spatiotemporal Analysis and Hotspots Detection

Corresponding Author: Asiago Misiani

Co-authors: Murima Ng'ang'a, Nicholas Kirui, Edward Mberu

Introduction: Snakebite envenoming (SBE) is a potentially life-threatening disease. SBE affects people in predominantly poor, rural communities in tropical and subtropical countries. The objective of the study was to estimate the incidence of SBE in Kenya and to describe the geographic and temporal variations of SBE cases reported over a four-year period (2016-2019).

Methods: The study involved a descriptive retrospective analysis of SBE cases reported in the Kenya Health Information System (KHIS)-2.

Results: All the counties in Kenya reported cases of SBE. Overall, 75,277 cases of snakebite envenoming were reported over the four-year study period. Significantly more cases of SBE were reported among individuals aged above five years old compared to their counterparts aged less than five years (73.6% and 26.4% respectively, $p=0.001$). The average number of SBE cases reported in Kenya on a yearly basis was 18,819. Three counties (6%) reported the highest burden of SBE (annual mean >1,000 cases), namely; Turkana (1515.3 cases/year), Kilifi (1314.5 cases/year) and Wajir (1040.8 cases/year). The counties which reported the least number of SBE cases on average were Laikipia, Nyamira, Nyeri, Lamu and Nyandarua with an average of 126, 117, 111, 102 and 69 cases respectively being reported annually. The incidence of SBE in Kenya was 60.2 cases per 100,000 residents per annum with the median (interquartile range) average annual incidence of 29.3 (15.2-85.7) cases per 100,000 inhabitants per annum. The country's incidences of reported cases of SBE for 2016, 2017, 2018, 2019 were 101.5, 94.2, 104.4 and 112.4 SBE cases per 100,000 residents per year respectively. The highest incidence of SBE cases observed in the following counties (annual average incidence of SBE per 100,000 inhabitants); Kakamega (275), Kilifi (216), Wajir (172), Elgeyo Marakwet (171), Busia (162), Mandera (135), Turkana (134), Kwale (131), Kitui (129), Nairobi (112) and Marsabit (102). The counties with the lowest incidence (annual average incidence of SBE <10 per 100,000 inhabitants) included Lamu, Nyandarua and West Pokot.

Conclusion: Our study highlights counties in Kenya where SBE is a significant public health concern.

135. Strategies, challenges and opportunities for addressing drugs and substance abuse: A cross-sectional survey in selected counties in Kenya

Corresponding Author: Mariam Macharia

Co-authors: Janet Masaku, Henry Kanyi, Sylvie Araka, Collins Okoyo, Vincent Were, Charles Mwandawiro, Doris Njomo

Introduction: Drugs and substance abuse is one of the most pervasive problems in Kenya placing a great economic, social and health burden on the society. If left unaddressed, the country risks losing generations and development opportunities as resources are diverted to address the problem. Therefore in lieu of the complexities of drugs and substance abuse, difficulties and cost of treatment, development of effective treatment and prevention programs is a crucial part of a public health system. This study sought to identify strategies that can be embedded in the health systems framework of Kenya for prevention and management of drug and substance abuse.

Methods: The abstract reports qualitative findings from a cross-sectional mixed method study conducted between 2017 and 2018 in four counties; Isiolo, Kajiado, Murang'a and Nyamira selected following a review of KEMRI Cluster Coordinators reports of priority research needs. Separate in-depth interviews were conducted with purposively selected; previous users (64), current users (127), opinion leaders (64), county officials (21) and health workers (64). Data was transcribed, translated and analyzed manually by identified thematic areas and by a statistical computer package, QSR NVIVO 12.

Results: The identified strategies were: self-driven interventions; social support; law enforcement and rehabilitation. Self-driven interventions reported were reduced consumption, keeping busy and off bad company with highlighted challenges of; peer pressure, withdrawal symptoms and idleness. The respondents suggested withdrawal management, job creation and counselling as measures to curb abuse of drugs and substances. Social support through love, acceptance and social protection provided by family, community, faith-based and non-governmental organizations was reported helpful amid challenges such as stigma, familial problems and joblessness. Awareness creation, counselling and economic empowerment were mentioned as important for social support. Law enforcement through arrests, prosecution and disruption of drug distributions was reported as an important strategy with barriers related to corruption, poor community-police relationship and lack of clear laws. Opportunities for addressing the barriers were; community involvement, stakeholders' partnerships and devolving NACADA functions. Rehabilitation was another identified strategy although lack of facilities and human resource to provide such services would require prerequisite funding.

Discussion and Conclusion: The identified strategies are effective in management and control of drug and substance abuse. A multi-sectoral approach is however needed to support and strengthen the strategies to curb the risk of social, economic and health crisis related to drugs and substance abuse in Kenya.

Key words: Drug and substance abuse, strategies, challenges and opportunities

136. The burden of Non-Communicable Diseases among Public Transport Workers in Tanzania

Corresponding Author: Daniel J. Magomele

Background: The burden of NCDs is rising globally and at an alarming rate in sub-Saharan Africa. Although risk factors are widely studied, different populations face variations. In Tanzania and other countries with similar contexts, public transport workers (PTWs) are at a higher risk of NCDs due to the sedentary nature of their occupation and their working environment in general.

Methods: This cross-sectional study was conducted between May and July 2019 among 132 commuter bus (Daladala) drivers and their conductors in two districts of Ilala and Kigamboni, Dar es Salaam, Tanzania. The validated WHO STEPS tool was used to collect data. Body weight, height, waist circumference, blood pressure (BP), and random blood sugar levels of each participant were measured. We conducted descriptive analyses to examine the magnitude of NCDs and characteristics associated with such conditions using the SPSS software version.

Results: Participants were 132 (100%) males with high NCDs risk factors. Tobacco smoking was 32 (24.2%), alcohol consumption 31 (23.5%), about 58 (43.9%) were hypertensive, while only 1 (0.8%) had hyperglycemia. This population had a high burden of overweight 41 (31.1%) and obesity 8 (6.1%), comparable to the national average.

Conclusion: PTWs exhibited a high risk of overweight and obesity, and other risk factors for NCDs. Such high-risk factors may be attributed to the occupation and behavioral factors that need to be addressed. Efforts are therefore necessary to mitigate these factors for the safety of passengers and commuters in Tanzania.

137. The burden, correlates and outcomes of left ventricular hypertrophy among young Africans with first ever stroke in Tanzania

Corresponding Authors: Sarah Shali Matuja

Co-authors: Patricia Munseri, Candida Moshiro, Khuzeima Khanbhai, Karim Mahawish

Background: Left ventricular hypertrophy (LVH) is a pathophysiological response often due to chronic uncontrolled hypertension. Our primary aim was to investigate the magnitude, correlates and outcomes of LVH as a surrogate maker for chronic uncontrolled hypertension in young adults (≤ 45 years) with stroke. Our secondary aim was to determine the accuracy of electrocardiography using Sokolow-Lyon and Cornell criteria in detecting LVH compared to echocardiography.

Methods: This cohort study recruited young strokes who had undergone brain imaging, electrocardiography and transthoracic echocardiography. The modified Poisson regression model examined correlates for LVH. The National Institute of Health Stroke Scale assessed stroke severity and the modified Rankin Scale assessed outcomes to 30-days. The performance of electrical voltage criteria was estimated using receiver operator characteristics.

Results: We enrolled 101 stroke participants. Brain imaging revealed ischemic strokes in 60 (59.4%) and those with intracerebral hemorrhage, 33 (86.8%) were localized to the basal ganglia. LVH was present in 76 (75.3%), and 30 (39.5%) and 28 (36.8%) had moderate or severe hypertrophy respectively. Young adults with pre-morbid or new diagnosis of hypertension were more likely to have LVH, 47 (61.8%), and 26 (34.2%). On multivariable analysis, LVH was independently associated with not being on anti-hypertensive medications among hypertensives participants (risk ratio 1.4 (95% CI: 1.04–1.94)). The mean National Institute of Health Stroke score was 18 and 30-day mortality was 42 (43.3%). The sensitivity and specificity for Sokolow-Lyon in detecting left ventricular hypertrophy was 27% and 78%, and for Cornell was 32% and 52% respectively.

Conclusions: We identified a high proportion of LVH in young adults with stroke associated with chronic undertreated hypertension coupled with a high 30-day mortality. Our findings did not support the use of the electrical voltage criteria for detecting LVH. We recommend low-cost interventions like blood pressure screening, treatment and control to reduce this burden.

138. The Prevalence of Road Traffic Accidents in Juba City, 2018, South Sudan

Corresponding Authors: Kenneth Lado Lino Sube

Background: Road traffic accidents remains as one of the leading causes of death and life-long disability worldwide.

Objectives: This study aimed to determine the prevalence and associated risk factors for road traffic accidents in Juba, South Sudan.

Methods and materials: This is a retrospective study using data from registers at Juba Teaching Hospital and Directorate of Traffic police between January – December 2018. Data were collected, cleaned and entered into a computer database. Statistical analysis was performed using SPSS Version 21 Software. A variable with a p value of < 0.05 was considered statistically significant.

Results: Out of the 7862 patients at Surgical OPD, Juba Teaching Hospital, 7% (7313 per 100,000 population) were cases of road traffic accidents in which 82% males and 18% females, age range from 9 months to 97yrs, mean 26.9, SD+/-12.53. Most of the road traffic accidents patients 37% were of age group 31-40 years. Majority 36% from an identified location and 44% presented to OPD at night hours. Out of 1081 drivers, 37.4% involved in slight injury, 27% severe injury, 27.3% accidents that resulted to damage of property, 5.4% accidents resulted to death, 3% driving under influence of alcohol. Most drivers 42% of age group 31-40yrs, $p=0.015$. There were 1141 drivers registered: 81% had licenses while 19% without licenses. Private cars were associated with the highest prevalence in the outcome of the accidents: 56% causing death, 50% causing slight injuries and 42% causing severe injuries, 82%, driving under influence of alcohol, $p=0.01$. Motor cycles 39% were the main leading cause of slight injuries.

Conclusion: Road traffic accidents still remain a public health problem in Juba with younger age drivers involved in accidents.

139. To develop a sustainable continent - wide Sickle Cell Disease (SCD) resources for multidisciplinary research to increase understanding of SCD and improve health outcomes in Africa.

Corresponding Authors: SickleInAfrica-SPARCo Center

Background: The Sickle Pan-African Research Consortium Clinical Coordinating Centre (SPARCO Center) with 6 Consortium sites and the Sickle Africa Data Coordinating Centre (SADaCC) formed the Sickle Cell Disease (SCD) in Sub-Saharan Africa (SSA) Network (SickleInAfrica) that, intends to develop sustainable continent-wide SCD resources for multidisciplinary research that will increase understanding of SCD and improve health outcomes in Africa. SCD is a disorder of public health significance; common [300,000 global annual births, over 75% in Sub-Saharan Africa (SSA)(1)], with a high burden of morbidity and mortality despite evidence-based, effective interventions. In phase 1, the study successfully developed a registry and enrolled over 13,000 SCD patients, developed the recommended standards of care (SoC) for SCD management, skills interventions conducted to clinicians, researchers and educators and multi-site research strategy developed.

Aims at: Provide governance, oversight, and operations by establishing a procedure for integration of new sites whilst strengthening existing sites, To expand the SCD registry database by enrolling 21,000 new participants to give a total of 34,000 participants, Support the integration of consistent SoC into SCD healthcare, Facilitate launching and successful completion of cohort and implementation research studies, Participation in training programs by strengthening and developing partnerships and, Facilitate engagement with SCD partners in health, research, and education.

Methodology: Enroll 21,000 new SCD Patients to strengthen the existing SCD Registry of 13,000 SCD Patients for targeted cohort of 34,000, Review and localizing the guidelines for SCD Management, Cohort and Implementation Studies of New Preventive/Therapeutic Practices, Dialogues with existing training programs for skills development, use of an integrated approach to SCD by facilitating engagements with SCD communities to ensure integration, harmonization and sustainability of efforts.

Expected Results: Started in June 2021 with initial consortium engagements. Reduced public health burden of SCD by established framework for research whilst making contribution to the global scientific knowledge, enabled disease-modifying and curative treatment of SCD.

Conclusion: Center will sustain, enhance and grow SCD in SSA network to reduce the public health burden of SCD, through a robust framework for research, health and education, whilst contributing to global scientific knowledge, enabling care, treatment and eventually cure for SCD.

140. Tobacco smoking and development of hypertension in urban and rural population of Kisii County, Kenya

Corresponding Author: Alex Ontiri

Co-author: Dr. Harun Kimani

Background: Hypertension, a primary component of cardiovascular diseases, has been a major cause of morbidity and mortality worldwide. Rising cases of cardiovascular diseases in Sub Saharan Africa have been attributed to undiagnosed, untreated and inadequately treated hypertension. There has been limited ability to attain data showing the population and household specific impact of this disease in order to provide specific and targeted interventions and control strategies in urban and rural populations. Smoking has been indicated to contribute to a risk of developing hypertension to not only primary but also secondary smokers. This study therefore called for the need to determine tobacco smoking and development of hypertension among urban and rural populations of Kisii County Kenya.

Methodology: A random sampling method was employed to study the population which consisted of residents aged 30-69 years of age from an urban and rural population who satisfied the inclusion criteria resulting in 497 respondents. Blood pressure was measured and classified according to the Seventh (7th) Joint National Committee on Detection, Evaluation and Treatment of Hypertension. Data obtained was analyzed using Statistical Package for Social Science (SPSS) Version 21.

Results: The prevalence of hypertension for the sampled population was 44.668%. 43.598% in urban and 44.134% in rural populations. Those who currently smoked tobacco products ($p=0.007$), smoked tobacco products daily ($p=0.002$) and ever smoked daily in the past ($p=0.006$) were the statistically significant variables. Majority, 217(97.3%) of the respondents did not smoke yet reported to have hypertension.

Conclusion: The study concludes that active and passive smokers were at a similar higher likelihood of developing hypertension. The study recommends a targeted approach to addicted or exposed smokers in rural populations with rehabilitative and supportive measures to reduce or stop consumption and empower them with knowledge on prevention, early detection and management practices of hypertension.

Subtheme 4: Universal Health Coverage

141. A case report of Coarctation of the Aorta in the wake of COVID-19 complicating to brain aneurysm in Tanzania, a diagnostic and management challenge.

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Co-authors: Mark Mayala, Ally Qassim, Zalha Nuhu, Mohammed Bakari, Henry Mayala, Justus Ishengoma

Background: Coarctation of the Aorta (CoA) is a congenital malformation of the aorta. Asymptomatic refractory hypertension can be its only form of presentation, which usually leads to its late diagnosis and consequent complications.

Case presentation: We report a late diagnosis of secondary hypertension due to CoA in a 19-year-old male, which complicated to a tip basilar aneurysm. Our patient was relatively asymptomatic until he presented with severe headache and palpitations in his second decade of life. For over 5 years he was managed as a case of hypertension in peripheral facilities, despite its refractoriness to therapy. When he arrived at a tertiary level facility (Muhimbili Orthopaedic Institute, in Dar es Salaam, Tanzania) he underwent investigations, which confirmed a diagnosis of (CoA) and basilar aneurysm. He is currently on medical management but with no improvement of the hypertension. He is waiting for a percutaneous interventional therapy, which is not available in the country. The plan is to refer the patient to India. However, he is incapable of paying for himself and the current supporter is undecided on whether to cover the anticipated costs or not. The other option is to secure Government's support. Unfortunately, all these plans are further frustrated by travel restrictions due to the ongoing COVID-19 pandemic. Consent to publish this case was obtained from the patient.

Conclusion: This interesting case emphasizes on the need for Clinicians at all levels to always bear in mind the possibility of secondary hypertension in all young patients presenting with refractory hypertension, and that a proper cardiovascular examination must be conducted. Additionally, management challenges in the presence of constrained resources and the on-going COVID-19 pandemic have been highlighted.

142. A Pilot Phase IB/II Study Of Whole-Lung Low Dose Radiation Therapy (LDRT) In the Treatment of Severe Covid 19 Pneumonia Patients On (Or Requiring) Mechanical Ventilatory Support.

Corresponding Authors: Dr. Karishma Sharma

Co-authors: Dr. Farrok Karsan, Prof Reena Shah, Dr. Martin Musumbi, Dr. Angela Waweru, Grace Kirathe, Heldah Amariati, Dr. Jasmit Shah, Prof. Mansoor Saleh

Introduction: Low-dose radiation therapy (LDRT) has been used for non-malignant conditions since early 1900s for its anti-inflammatory and antifibrotic effects. Severe Covid 19 Pneumonia results from an exuberant inflammatory response to the SARS-CoV-2 virus and therefore LDRT may have a potential role in these patients. Recently, Emory University successfully demonstrated utility of LDRT in Covid 19(C19) pneumonia.

Objective: The primary objective of our investigator-initiated trial was to assess the safety, feasibility and toxicity of LDRT in patients with severe C19 pneumonia. Secondary objectives included improvement in oxygenation at day 3, and ability to avoid mechanical ventilation at day 7 post LDRT. The primary endpoint of this study was percentage of patients that complete LDRT with no treatment related adverse events/change in vitals signs within 24hours post treatment. Secondary end point was percentage of patients weaned off oxygen at day 3, avoid mechanical ventilation at day 7 and percentage of patients discharged or dead at day 14 and 28.

Methods: Ten patients with PCR and HR-CT confirmed severe C19 pneumonia, not improving on conventional therapy with increasing oxygen requirement were enrolled. Serial laboratory tests including CBC, renal function, ferritin, d dimer and CRP were performed on all patients. Samples for cytokines were stored for future analysis. Eligible patients received a single 100cGy fraction to both lungs. Patients were followed for 28 days, discharge or death. The study was IRB approved and patients provided informed consent.

Results: Our patients had a median age of 59 years. Hypertension and Diabetes were the most frequent comorbidities. 7 of 10 patients were on non-invasive ventilation (NIV) at enrolment. All patients had received dexamethasone and 70% of patients had received Tocilizumab prior to inclusion in the study. Median time from admission to LDRT was 10 days (5-20). LDRT was feasible and tolerated without toxicity in all 10 patients. 90% avoided mechanical ventilation within 7 days of LDRT. 40% of patients demonstrated at least 25% improvement in oxygen requirements within 3 days. 6 patients were discharged and remain off Oxygen, 4 progressed and died (1 due to sepsis and 3 in cytokine storm). Median time to discharge (n=6) and death (n=4) were 16.5 and 11 days respectively.

Conclusion: LDRT was feasible, safe and shows promise in the management of severe C19 pneumonia including in patients progressing on conventional treatment. Further trials are warranted to identify patients most likely to benefit from LDRT as well as explore predictive biomarkers.

143. Assessing Elderly Population Health Needs and health systems' capacity for the implementation of Universal Health Coverage in Kenya

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Introduction: UHC is ensuring that all people receive the quality services they need, and are protected from health threats, without financial hardship. Population ageing will have an impact on UHC in Kenya if programs for the elderly are not critically considered. The purpose of this study was to assess healthcare needs of elderly population for UHC implementation.

Methodology: This was a mixed method study targeting the elderly in 4 UHC pilot counties and 8 non-UHC pilot counties in Kenya. A health facilities assessment tool was administered to selected facility in-charges while qualitative data was collected through 36 FGDs with elderly men and women. Descriptive and thematic analysis was employed. Ethical approvals were adhered to and all participants consented to participate.

Findings: Availability of support services for the elderly was done using a set of indicators which comprised of age-friendly policies/guidelines/protocols, internal documents, welfare programs, physical environment and care processes. The mean availability of support services for the elderly was 41.5% in UHC pilot counties and 32.5% in non-pilot counties. Available support services were physical environment e.g., readable signage which scored 76.8% in pilot counties and 70.2% in non-UHC pilot counties. Special health services scores were 55.2% in piloted and 50% in non-pilot. Ramps/stable furniture was 74.3% in UHC pilot counties and 65.7% in non-UHC pilot counties. The least available support services were welfare programs for older persons at 17.2% in UHC pilot counties and 12.0% in non-UHC pilot counties. It was noted in the qualitative study that communities needed level 2&3 facilities upgraded so that they could access specialized services. Need for supplies like drugs, mosquito nets, food and x-ray equipment was also noted. "Why don't we have specialized doctors brought to our facility? FGD.

Conclusion: Social and welfare Programmes for the elderly are critically low in all counties.

144. Choleloduodenostomy for obstructive jaundice following SARS-CoV-2 infection: A case report.

Corresponding Authors: Wilfried IRAMBONA

Co-authors: Jean Claude MBONICURA

Description: During covid-19 pandemic, medical observations have founded extra-pulmonary symptoms possibly due to SARS-CoV-2 virus. Our goal was to contribute to the understanding of the inflammatory effect of SARS COV-2 on the pancreas causing the obstructive jaundice pathogenesis during SARS-CoV-2 recovering period. We present a case of a 51-year-old patient with no particular medical history, recovering from SARS-CoV-2 infection. Two weeks after discharge, the patient developed abdominal pain associated with anorexia, pruritus and obstructive jaundice according to the MRI and ultrasound which suspected a tumor lesion of the head of the pancreas. Laparotomy for biliary bypass, biopsy or resection of the pancreatic lesion was decided. During laparotomy, there was a pancreas hard along on its head, neck, body and tail. The extra and intrahepatic bile ducts were very dilated. The main bile duct was compressed by a hard and overall enlarged pancreas. There was no visualized tumor. Histological analysis of the biopsies of the head, body and tail of the pancreas were also performed and revealed lesions of acute pancreatitis. Postoperative follow-up was good with clinical regression of jaundice and an overall normal pancreas after one week according to the abdominal CT scan control. It seems that COVID-19 patients are at risk of developing late complications due to the virus and then need a rigorous clinical follow-up.

Keywords: Obstructive jaundice, SARS-CoV-2, Surgery.

145. Could Communities Help Achieve UHC- A Uganda Case Study.**Corresponding Author:** Adupa EMMANUEL**Co-authors:** Ndibalema Mercy, MD, Akankwasa Gerald MD, DCM, Mirembe Mariam, MD, BcPH, Kwikiriza Gyavira BMS,**Introduction:** WHO set a resolution to achieve universal health coverage by 2030 through SDGs by emphasizing equity, quality health and protection from financial risks amidst ideology of global health. Implementation by member states by 2016 described localizing the SDGs to describe the roles of local institutions and actors. However, most members remained pessimistic about the potential for achieving the SDGs because of the estimated costs. A 2018 report showed fewer children under 5 suffering from malnutrition but the same report suggested that it's unlikely to end malnutrition by 2030. Just like most countries struggling to achieve this, Uganda is no exception. In a 2017 study in select communities in western Uganda, the biggest part of the population did not have access to clean water, essential medicines and basic education.**Objective:** To determine the impact of community involvement towards achieving UHC**Methods:** A multi-sectorial approach was used in the implementation of the projects and to compare similar projects in other communities. Basing on community diagnosis and prioritization with their full participation, water supply, drug supply chains, health education and a community health center have been established to improve health.**Results:** Strategies on community integration and dangers of ideology of self-reliance rather than community aggregation. Local Health intervention strategies and innovations, educating the community on health interventions and better health seeking behaviors Community involvement in health interventions amongst others are things we ought to do in order to achieve UHC.**Conclusion:** Local community health is a fundamental key to achieving UHC, UHC through SDGs won't be achieved by 2030 because of poor community involvement, and Practices aimed at achieving social justice must be implemented.**146. Critical review of literature on health financing reforms in Uganda – progress, challenges and opportunities for achieving UHC****Corresponding Author:** Walter Denis Odoch**Co-authors:** Charles Hongoro, Flavia Senkubuge**Background:** Universal health coverage (UHC) is one of the sustainable development goals (SDG) targets. Progress towards UHC necessitates health financing reforms in many of the countries. Uganda has had reforms in its health financing, however, there has been no examination of how the reforms align to the principles of financing for UHC.**Objective:** This review examines how health financing reforms in Uganda aligns with UHC principles and contributes to on-going discussions on financing UHC.**Methods:** We conducted a critical review of literature and utilized thematic framework for analysis. Results are presented narratively. Analysis focused on health financing during four health sector strategic plan (HSSP) periods.**Results:** In HSSP I, the focus of health financing was on equity, while in HSSP II the focus was on mobilizing more funding. In HSSP III & IV the focus was on financial risk protection and UHC. The changes in focus in health financing objectives have been informed by low per capita expenditures, global level discussions on SDGs and UHC as well as the on-going health financing reform discussions. User fees was abolished in 2001, sector wide approach implemented during HSSP I&II and pilots with results-based financing has occurred. These financing initiatives have not led to significant improvements in financial risk protection as indicated by the high out-of-pocket payments.**Conclusion:** Health financing policy intentions were aligned with WHO guidance on reforms towards UHC, however actual outputs and outcomes in terms of improvement in health financing functions and financial risk protections remain far from the intentions.**147. Digestive stomas at Kamenge Teaching Hospital: Epidemiology, indications and evolution. About 49 cases****Corresponding Authors:** E Mwaruro**Aim:** our objective was to study digestive ostomies at Kamenge Teaching Hospital.**Methodology:** it was a retrospective descriptive study carried out in the Department of General Surgery of Kamenge Teaching Hospital, over a period of 2 years, from September 2018 to September 2020.**Results:** Of the 536 patients operated on for digestive pathologies, 49 patients (9.14%) were the subject of our study. The male sex (71.43%) was dominant with a sex ratio of 2.5. The average age was 32.87 years with extremes ranging from 1 day to 83 years. The frequent reason for consultation was abdominal pain (53.19%). The majority of patients undergone an emergency surgery (67.35%). The main indications were tumor pathology (24.49%) followed by sigmoid volvulus (20.41%) and anorectal malformations (18.37%). The stoma was temporary in 75.51% of cases. The most performed stoma was colostomy

(75.51%). The jejunostomy was the only feeding stoma performed. The complication rate was 16.33%. The ileostomy was the most complicated stoma. The death rate was 12.24%.

Conclusion: Making a digestive stoma is a gesture that can be essential in the care of a patient. People of any age and gender can be affected. Better surgical management, the intervention of resuscitators and stoma therapists are essential to reduce the rate of complications.

Keywords: Digestive ostomies, Kamenge Teaching Hospital.

148. Digitalizing Tanzania's health system: Co-developing a national digital health strategy and primary health care roadmap to achieve universal health coverage

Corresponding Author: Eden Tarimo

Description: We can see the potential of digital and data all around us—from the use of digital systems to aid in disease surveillance to the application of health records to advance universal health coverage (UHC). It has become even more relevant as the world grapples with the devastating impacts of the coronavirus disease 2019 (COVID-19). Under the leadership of the government of Tanzania, with technical support from PATH, the Data Use Partnership (DUP) is a country-led initiative improving the national health care system through better use of health information to achieve UHC. A cornerstone of these efforts has been the development of the National Digital Health Strategy (2019-2024), which aligns with the country's 2020 vision and 2020 health policy, aimed at realizing the country's UHC priorities. The strategy plays an essential role in guiding the implementation of digital health initiatives, enabling a health system that is patient centric, data driven, and healthier as a result. Based on an assessment that revealed more than 160 digital health and health-related systems in Tanzania, the government and DUP drafted a strategy that reflects ten high-priority areas to guide the next five years of digital innovation in the country. DUP is also simultaneously supporting the government to develop a National Primary Healthcare (PHC) Digital Transformation Roadmap to support interoperability with other health information systems, continuity of care, and clinical decision-making. During this oral presentation, the government of Tanzania, alongside the PATH team, will present on the country's digital journey and the lessons from co-developing a national digital health strategy and PHC roadmap. This presentation will support other East African countries embarking on their own journeys to digitally transform their health systems.

149. Evaluation of effect of community dialogue meetings on self-efficacy, willingness to receive and attitude towards COVID-19 vaccine among district leaders' in Rwenzori and Bunyoro regions, Uganda, May 2021

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Co-authors: Allan Komakech¹, Bob Omoda Amodan¹, Daniel Kadobera^{1,2}, Benon Kwesiga^{1,2}, Lilian Bulage^{1,2}, Flora Banage³, Arthur Fitzmaurice³, Julie R. Harris³, Peter J. Elyanu⁴, Alex Rioplexus Ario^{1,2}

Affiliation: Uganda Public Health Fellowship Program, Ministry of Health, Kampala, Uganda, Uganda National Institute of Public Health, Kampala, Uganda, United States Centers for Disease Control and Prevention, Kampala, Uganda, Baylor College of Medicine Children's Foundation Uganda

Background: A high level of vaccine uptake is necessary for COVID-19 pandemic control. However, early uptake of the COVID-19 vaccine in Uganda was poor. In May 2021, dialogue meetings were held between district leaders from Rwenzori and Bunyoro regions and Baylor Uganda to find ways of reducing vaccine hesitancy and promote uptake among district leaders in those regions. We conducted a study to assess the effect of community dialogue meetings on interest in COVID-19 vaccine uptake.

Methods: In total, 164 district leaders were interviewed using pre-tested self-administered questionnaires before and after the dialogue meetings. We used a 5-point Likert scale (1=strongly disagree; 5=strongly agree) to assess willingness to receive COVID-19 vaccines, self-efficacy about receiving the vaccine, COVID-19 risk perception, safety concerns, and COVID-19 vaccines attitudes and beliefs. We analyzed the findings using Wilcoxon's sign-rank test.

Results: Measurement across all categories assessed shifted significantly towards uptake of the COVID-19 vaccines after the meetings. Median scores for willingness to receive vaccine changed from 3 (neutral) pre-meeting to 5 (strong willingness to receive vaccine) post-meeting ($p < 0.001$). Median scores for self-efficacy about receiving the vaccine improved from 3 (neutral) pre-meeting to 5 (strong interest in receiving vaccine) post-meeting ($p < 0.001$). Median scores for COVID-19 risk perception improved from 3 (neutral) pre-meeting to 5 (highly at risk) post-meeting ($p < 0.001$). There was a statistically significant reduction in safety concerns with medians changing from 4 (worried about vaccine side effects) pre-meeting to 2 (not worried) post meeting ($p < 0.001$). Medians on COVID-19 vaccines attitudes and beliefs changed from 3 (neutral) pre-meeting to 5 (very positive) post-meeting ($p < 0.001$).

Conclusion: Dialogue meetings led to improvement in community leaders' willingness and intention to receive COVID-19 vaccines. More widespread use of such meetings with community leaders could reduce COVID-19 vaccine hesitancy and increase uptake.

Keywords: COVID-19 vaccines, Self-efficacy, Health behavior, Attitude, Perception, Uganda

150. Experiences of Frontline Workers in Quarantine Sites for COVID-19 in Kenya, a Qualitative Study

Corresponding Author: Kelvin Oruko

Co-authors: Mercy Agutu, Grace Mwangi

Description: The outbreak of the 2019 novel coronavirus (COVID-2019) was declared by World Health Organization (WHO) in January 2020 as a Public Health Emergency of International Concern, and in March 2020 as a pandemic. The outbreak has provoked the public and infection control measures. One of these measures is quarantine for a minimum of 14 days of people who may have potentially been exposed to COVID-19. Within a quarantine facility there should be a team of trained health-care personnel and auxiliary staff. This study was aimed at understanding the experiences of frontline workers and their auxiliary counterparts working in quarantine sites. The study applied a qualitative phenomenological design, where we conducted 13 in-depth interviews and small group discussion in three different quarantine sites in Nairobi, Kitui and Makindu. Data was analyzed thematically. Out of the 27 participants who took part in the study, 15 were frontline health workers while 12 were auxiliary staff. Issues identified as barriers and challenges to working in quarantine sites included: stigma, lack of preparedness of both the frontline workers and quarantine clients, inadequate resources at the quarantine sites, fear of infection, long hours of work and burn out, changing policy and guidelines on COVID-19 control measures, lack of motivation, coordination and communication gaps. Motivators and coping strategies used included: self-motivation, support (from family, friends, colleagues, supervisors and administration), negative test results, good relationship between staff and clients, trainings and availability of PPEs, past experience of working in a quarantine site and motivation of gaining experience.

The frontline workers faced several challenges including physical and emotional. Besides, they showed resilience and mitigation approaches to deal with these challenges. There is need to provide a comprehensive support to safeguard the health and wellbeing of the frontline workers such as trainings and psychosocial support for effective provision of service provision.

151. Factors associated with medical student performance

Corresponding Authors: Alyssa Pfister

Context: Improving the quality of medical school graduates could increase the capacity for universal health coverage. In Burundi, literacy rates and educational opportunities have increased in recent years, but there is still a gender gap particularly in rural areas. With recurrent conflict and inadequate healthcare, many medical students have lost one or both parents and have struggled to find funding for their education. How do these factors contribute to medical student performance?

Objective: To identify factors associated with Grade Point Average (GPA) in a Burundian medical school.

Methods: A quantitative correlational study was performed analyzing data from questionnaires administered to consenting graduates from the classes of 2012-2019 at Hope Africa University. Data were analyzed using univariate tests to identify factors associated with GPA as a marker of performance.

Results: Of the 232 physician graduates, 107 (46%) participated in this study. In the univariate analysis, the variables significantly associated with increased GPA were (1) age: younger age at entrance to primary school [$p=0.021$], younger age at medical school graduation [$p=0.003$]; (2) fewer siblings [$p=0.028$]; (3) higher parent education level: mothers [$p=0.041$], fathers [$p=0.047$]; and (4) more self-reported hours of study [$p=0.01$].

Conclusions: Younger age and increased hours of study were independently associated with higher GPAs. To increase equity in medical education and the quality of health coverage in low-income countries, additional research is needed into programming that could assist students from diverse backgrounds to excel academically.

152. Factors Predicting Mortality in Digestive Surgery of Elderly Patients at Kamenge Teaching Hospital.

Corresponding Author: Dr Patrick IRAKOZE

Introduction: As average life expectancy lengthens, the services of digestive surgery are more and more required to take care of elderly patients. More studies report that digestive surgery is associated with an increase morbidity and mortality, particular in elderly patients, where we have performed this study to improve the management of these patients.

Objective: our goals was to determine the mortality predicting factors after digestive surgery in elderly patients. Patients and methods: This is a retrospective descriptive and analytical study carried out in the General Surgery and the Anesthesia and Resurrection wards at Kamenge Teaching Hospital, from January 1, 2018 to December 31, 2020. All patients, older than 55, operated for abdominal pathologies during this period were included.

Results: During the study, 102 patients (12.20%) underwent intervention on the digestive tract. The main of age was 64. As medical history, 30 patients (29.41%) presented Arterial Hypertension. The main chief of complaint was abdominal pain in 70 patients (68.62%). The most common indication of laparotomy was tumor in 29 cases (28.43%), intestinal occlusion in 25 cases (24.51%) and peritonitis in 13 cases (12.75%). During laparotomy, tumor was found in 43 patients (42.15%) and gastric tumors represented 21.56%. As a palliative care, external bypass, was performed in the operating room in 18 cases (17.66%).

Postoperative complications were found in 42 patients (41.17%) with predominance of peritonitis in 13 cases (12.75%). 25 patients died during postoperative follow-up (overall mortality 24.51%). The high ASA score ($p = 0.0002$), age ($p = 0.003073$), the urgency of the surgery ($p = 0.03758\%$), late consultation ($p = 0.03849$) and the occurrence of postoperative complication ($p = 0.014132$), were found as prognostic factors of postoperative mortality.

Conclusion: Mortality in elderly patients who underwent gastrointestinal surgery can be prevented by considering age, ASA score, urgency of the procedure, time between consultation and referral, surgical intervention and the occurrence of postoperative complications.

Keywords: Digestives pathologies, Surgery, Elderly patients, CHUK.

153. Gendered effects of COVID-19 related School Closures

Corresponding Authors: Faith Mbushi

Description: Over 18 million learners in Kenya, were affected by school closures between March 2020 and January 2021 due to the COVID-19 pandemic. This paper highlights key gender-specific effects of COVID-19 related school closures in Kenya among school-going children. The study used a mixed-methods research methodology, collecting data from existing adolescent cohorts that had been formed from other studies carried out by Population Council, Kenya, prior to the pandemic. Bivariate and multivariate analyses on socio-economic and health outcomes were carried out, adjusting for age and gender on STATA V14 in four counties. In-depth interviews were conducted in seven counties (3 counties more than the quantitative survey were included for a national outlook) with a total of 234 adolescent girls in November 2020 and 12 gender and education policy and practice actors. Data was analyzed on ATLAS.ti V8. When schools opened, school re-enrollment was significantly higher for 10 -14-year-olds compared to 15 - 19 year old in Kisumu (aOR: 0.1, 95%CI:0.009, 0.5), Nairobi (aOR: 0.03, 95%CI: 0.004, 0.2) and Wajir (aOR: 0.5, 95%CI:0.3, 0.9). A weighted analysis adjusted for loss to follow up showed that 87% of girls and 92% of boys re-enrolled. Significantly more boys than girls were re-enrolled in Kilifi (97% Vs 90% [aOR: 0.4, 95% CI:0.2, 1.00), although the significance was marginal; and in Kisumu, 99% Vs 85% [aOR:0.3, 95%CI:0.11,0.9). Qualitative results highlighted that girls were disproportionately assigned more household chores than boys, however, in Wajir, more boys than girls reported being involved in household chores (13% Vs 37% [aOR:1.6, 95%CI:1.1-2.3). Overall, major signs of depression were observed to be highest in Nairobi at 14% and lowest in Wajir at 3%. Boys showed a higher percentage of depressive symptoms than girls in Nairobi (20% vs 13%) (aOR: 0.5; 95%CI:0.3, 0.8), and in Wajir (6% vs 1%) (aOR: 0.3; 95%CI:0.1, 0.8). Although the majority of the gender-specific outcomes were existing issues pre-COVID -19, evidence shows that the pandemic exacerbated pre-existing vulnerabilities for marginalized and hard to reach adolescents who require urgent attention. The findings from this study can inform potential policy and programming mitigation strategies for this and future pandemics.

Key Words: COVID-19, Gendered Effects, School Closures

154. Health diplomacy – a bridge to the internalization of the health financing progress matrix in Burundi

Corresponding Author: Alexandre Nimubona

Background: whatever the form, financing alone will never bring about universal health coverage. Reaching this non-purely health goal requires cross-sector interventions coming in support of financing mechanisms. Within this framework, the World Health Organization has set up the health financing progress matrix to assess the country's health financing progress. The World Health Organization calls for support interventions escorting health financing systems to perform universal health coverage. This paper aims to examine how health diplomacy may pave the way to the progress matrix internalization in Burundi.

Main text: characterized by multiple fragments of funds and of services which widen economic and health status inequalities termed de-universalization of universal health coverage, Burundi health financing system has become inadequate to meet health needs of the population – different people with diverse needs of health services includes different segments, and coverage may be inconsistent, duplicative or incomplete. Health diplomacy shall mitigate this situation by creating health financing attachés in each of 19 sectors constituting the country's life. Health financing attachés shall have three main missions:1) enhancing trust-building, 2) search for consensus, 3) building solidarity for universal health coverage. Practices of health financing attachés shall make health diplomacy a bridge to the progress matrix internalization. Referring to a country's acceptance of the World Health Organization's health financing progress matrix, the internalization of the matrix shall be achieved into four pathways: (i) raising the profile of health diplomats to be accredited to out-of-health sectors, (ii) making available health financing attachés offices in every sector, (iii) defining means by which receiving sectors of internalization will act on, (iv) operationalization of proportionate universal health coverage.

Conclusion: health diplomacy holds ethical practices for the proper internalization of the health financing progress matrix. Measuring the size of the health gap and the steepness of the health gradient shall determine the internalization level. Health

diplomacy needs to be put into all health financing agendas to make them successful for proportionate universal health coverage in the poorest countries like Burundi.

155. Health facilities' readiness for safe surgical care provision in Uganda and the Eastern Democratic Republic of Congo during Ebola and COVID-19 era

Corresponding Author: Franck Katembo Sikakulya

Introduction: As the COVID-19 pandemic continues to evolve and different variants spread worldwide. COVID-19 compounded Ebolavirus disease in the Eastern Democratic Republic of Congo (DRC) which affected the neighboring country, Uganda. In Africa, preparedness is challenged by the general weakness of health systems and structures. This study aimed to assess health facilities' readiness to provide safe surgery during Ebola and COVID-19 era in Uganda and in the Eastern DR Congo so as we can be able to respond appropriately to these two countries and to avoid the negative impact on provision of surgical care.

Methods: An online cross-sectional study was conducted in selected national, regional referral and general hospital facilities in Uganda and in the eastern DR Congo from 1st August 2020 to 30th October 2020. Data was analyzed using Stata version 15.

Results: The participation rate was of 37.5% (72/192) for both countries. None of the hospitals fulfilled the readiness criteria for safe surgical care provision in both countries. The mean bed capacity of participating health facilities (HF) was 184 in Eastern DR. Congo and 274 in Uganda with an average surgical ward bed capacity of 22.3% (41/184) and 20.4% (56/274) respectively. The mean number of operating rooms was 2 and 3 in Eastern DR. Congo and Uganda respectively. Nine hospitals (12.5%) reported being able to test for Ebola and 25 (34.7%) being able to test for COVID-19. Postponing of elective surgeries was reported by 10 (13.9) hospitals. Only 7 (9.7%) hospitals reported having a specific operating room for suspect or confirmed cases of Ebola or COVID-19. Appropriate Personal Protection Equipment was available in 60 (83.3%) hospitals. Most of the staff had appropriate training on donning and doffing of PPE 40 (55.6%).

Conclusion: The lack of readiness to provide safe surgical care during Ebola and COVID-19 era across the participating hospitals in both countries indicate a need for strategies to enhance health facility supplies and readiness for safe surgical provision in resource-limited settings.

156. Integration of information and communication technology in COVID-19 pandemic response in Uganda

Corresponding Author: Proscovia Nambuya Mbabazi

Description: The outbreak of coronavirus disease 2019 (COVID-19) has led to integration of information and communication technology (ICT) in the timely response of the pandemic. The polymerase chain reaction (PCR) centralized laboratory investigation of the severe acute respiratory syndrome coronavirus type 2 (SARS COV-2) virus necessitated an efficient transportation of specimens to testing laboratory and mechanism for immediate reporting of results to identify, manage cases and trace contacts. Outbreaks can overwhelm weak or fragile health systems that lack easily adaptable tools and infrastructure. Timely detection, preparedness, appropriate response and prompt reporting are essential for limiting both the loss of human life and crippling socio-economic impact of COVID-19. Despite the success of the electronic information systems innovations for human immunodeficiency virus (HIV) management, there has been suboptimal engagement of these ICT innovations in the management of disease outbreaks in Uganda. However, the HIV information systems success story for results distribution to the countryside catalyzed the approval to integrate ICT especially the laboratory information management systems (LIMS) for COVID-19 response. To integrate ICT to define the information needs for the response, data flow diagrams (DFD) were used to graphically represent the flow of data to show the logical scope of existing information system in disease outbreaks. The logical DFD described the processes that are involved in the response to collect and transfer data from a rumor or an alert or case notification, sample collection, transportation to the testing laboratory, result reporting, case identification and management to contact tracing. To identify resources in the information management for the different processes towards achieving the integrated response system, stakeholder mapping and engagement for the defined processes together with existing system implementation and users in the Uganda health space was done. ICT enabled timely reporting and access to the laboratory test results, case identification and management, contact tracing and cross boarder travel. This should be the strategy for health services provision in Uganda

157. Navigating Emergency but Licit Procurement for Covid-19 Pandemic.

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Co-Authors: Joshua Wamithi Maina

Background/Introduction: During a plenary discussion at 13TH East Africa Procurement Forum held in Kigali in April 2021 and further upon a desk review of current Procurement Laws and Regulations of Kenya, Uganda, Tanzania, Rwanda, Burundi and those of other African Countries, it emerged that in the midst of Covid-19 pandemic, No Governments have enacted

comprehensive policies, laws, regulations and procedures to handle emergency procurement. The situation is same in Regional Integration organizations. Procurement Regulations and Manuals of Eastern and Southern Regional organizations: EAC, AU, COMESA and IGAD provide little or no policy, rules or procedure for this. This has resulted in cases of corruption, uncontrolled waste of public funds through duplicative and ineffective procurements. Example: Reports of Kenya's Auditor General and PPRA on KEMSA COVID-19 emergency procurements (<http://www.parliament.go.ke/search/node?keys=report+on+kemsa>). Regional Governments and Organizations, should consider the following reforms: Direct procurement; Request for Quotations regardless of procurement value; No absolute deadline for response; Retrospective approvals; None-exact and simplified evaluation criteria; Most technically acceptable offer when none is responsive; Order from second lowest evaluated bidder; Allow alternative bids; Awarding higher priced offer if more technically advantageous; Split orders; Commence procure procedure before receipt of funds; Accelerate reviews/awards/due diligence/contracting; Waive shortlisting procedure and three quotations requirement; Backward planning; Create and empower a multi-agency emergency task force; No middlemen and Agents and use Manufacturers of Original Equipment; Delegate procurement Authority; Allow brand names; Waive Standardization; Ignore missing documents; Conduct due-diligence; Consortium/collaborative innovation & buying strategies; Agile/Buffer stock; Suspend, vary and re-negotiate terms and conditions of contracts, including redefining force majeure and frustration; Embrace re-built Cognitive driven data Analytics.

Key words: emergency, risks, value for money, accountability, results.

158. Perception and Challenges of Health Sciences Students towards E-Learning in a Sub-Saharan African Country – A Multi- Institutional Study

Author: Gloria Kabare

Co-authors: Nikita Muthuuri, Krishan Sarna, Fidel Gwala, Thomas Amuti, Beda Olabu, Moses Obimbo, Julius Ogeng'o

Background: E-learning is important in improving access to quality health sciences education. This study was done to determine the perspectives of Kenyan health sciences students towards e-learning in a bid to enhance effective learning during the Covid-19 pandemic and beyond.

Method: This descriptive cross-sectional study targeted 294 Kenyan health sciences students. Approval was obtained from KNH-UON Ethics Committee and informed consent was obtained from participants. Data was collected using Google Forms and analyzed using SPSS. P value (≤ 0.05) was considered significant at 95% confidence interval.

Results: Most students had good knowledge on online learning with 74.9% reported having received training on the same by their universities and 74.5% further reporting to have taken tests on the same. Majority (45.5%) were conversant with use of the internet to access materials. Majority portrayed a positive attitude towards online learning with (79.6%) agreeing to its use as an integral part of learning. 70.2%, however, noted a decrease in concentration and changes in reading habits (44.7%). Regarding challenges faced, unreliable internet connection (56.9%) and lack of motivation (73.7%) were common.

Conclusion: The majority of the Kenyan health sciences students portrayed good knowledge, attitude and practice towards e-learning amidst challenges.

159. Quest for Universal Health Coverage in Kenya: Leveraging Legal Approaches

Corresponding Author: Nellah Ndaka

Description: Universal Health Coverage (UHC) seeks to advance the global strategy in healthcare. Academic scholars have deliberated on how multiple factors intertwine to ultimately enable (or hinder) the expansion of UHC e.g., the role of good economics for good healthcare systems or that of gender-based discrimination. This abstract seeks to contribute to the discourse that is gaining traction, the need for solid legal foundations to build an even more solid foundation for UHC, particularly in developing countries such as Kenya. Building on the 2019 Lancet Commission on Global Health and the Law that coined the term "the legal determinants of health" showing how law can be a powerful tool for ensuring the public's health and safety, this abstract argues that the creation and implementation of formal mandates for UHC based on legal rules can guide the work of various stakeholders in the health ecosystem thus creating a drive for action on sustainable development, national health institutions governance and implementation of fair, evidence-based health interventions. Inversely, the absence of strong legal foundations results in poor UHC outcomes - the health of the most vulnerable is undermined, health justice is not achieved and civil society freedoms are suppressed. The sustainable implementation of the existing legal and health policy frameworks is a crucial lever for UHC achievement in Kenya where there seems to be a gap between what is 'on paper' and UHC outcomes. By analyzing the current political economy debates in Kenya and the main barriers that have led to the ticking over of UHC implementation, lessons could be drawn to accelerate UHC achievement in Kenya. The premise of this abstract is that given the political, socioeconomic, and technical complexities of UHC, there is no unique right or wrong policy and no absolute success or failure. Furthermore, the sole existence of a solid legal framework for UHC policies will not be the end all be all for UHC achievement in Kenya rather, a step forward in the journey especially given the stark reality that, as it is, no country is yet to achieve full UHC.

160. The use of stories-of-significant change to elucidate health systems changes with potential to inform universal health coverage national aspirations from six pilot counties in Kenya**Corresponding Author:** James N. Kariuki,**Co-authors:** Tina Ouma, Eunice Wambui Njonge, Lilian Mayieka, Jennifer Orwa**Introduction:** Stories-of-significant-change written and told by healthcare workers increases the likelihood of evidence-informed policies and programs; a *sine-qua-non* for the well performing health systems needed to move towards realization of the national universal health coverage (UHC) aspirations. The objective of this study was to explore health-related stories containing experiential knowledge and local interventions that have potential to inform UHC national aspirations.**Methodology:** This survey used participatory-action research approach. Participants were drawn from counties ministry of health of six pilot counties (Bungoma, Isiolo, Kitui, Makueni, Nyandarua, and Taita Taveta) that were purposively selected to be part of an ongoing study. The stories were collected between September and November 2020. The stories-of-significant change technique were used as these provided for an inductive, indicator-free, participatory evaluation method that complements deductive research methods. It enhanced the collection, discussion, and selection of stories-about-significant changes that communities experienced at the county level because of implementing partial UHC initiatives. Stories were formally written in English language by various healthcare workers using a modified tool which had key components of the health systems and process changes. The stories were verified by a team of researchers from KEMRI to ascertain their authenticity.**Findings:** A total of 15 stories-of-significant change were received at KEMRI's Knowledge Management Division. The scripts were classified into 6 broad domains of change. Domain stories focusing on attitude/behavior change within a community were 4; knowledge or awareness creation were 4; healthcare personnel behavior were 3; technology adaption were 2; health care provision was 1; and innovations in laboratory processes was 1. Lessons learnt include personnel willingness, corporation and teamwork among healthcare workers produces positive health outcomes; listening to clients is critical for healthcare service improvement; experiential learning leads to services delivery improvements; community participation and ownership is crucial for sustainability of interventions; internal innovations by healthcare workers produces significant outcomes and are low cost to implement; and sustained follow-up of post-training among healthcare workers leads to early adoption and adaption of the new skills learnt.**Conclusion:** The stories-of-significant change technique elucidated "hidden" health systems and process issues that decision makers usually miss out during priority setting and resource allocation. County healthcare workers have valuable experiential knowledge about local health landscape. They can innovate as well as make key changes which have a significant bearing on UHC aspiration.**Recommendation:** Local knowledge and process innovations should supplement national guidelines if national UHC aspirations are to be realized.**161. User perspectives on the use of e-Compliance in monitoring Tuberculosis treatment adherence in Temeke, Tanzania****Corresponding Author:** Joseph Soka**Description:** The World Health Organization (WHO) is emphasizing on the use of digital adherence technologies in monitoring treatment adherence. OpASHA (<https://www.opasha.org>) came with a digital solution called e-Compliance for monitoring TB treatment adherence implemented in Tanzania since 2017, however, limited evidence exists on the contribution of digital technologies in improving treatment adherence.**Objective:** To analyze the users' perspectives on the contribution of e-compliance in improving Tuberculosis treatment adherence in Temeke District Tanzania.**Methods:** Qualitative in-depth interviews were carried out with 14 beneficiaries of e-compliance, community health care workers, and nurses in Temeke District. The interviews were audio-recorded, transcribed verbatim, and thematically analyzed.**Results:** Three themes emerged. First reduced loss-to-follow up among tuberculosis patients, attributed to consistency use of drug, retention to tuberculosis care and treatment, and continuity of treatment among disabled and critically ill patients. Second, saving time and cost for other economic activities, attributed to daily visits by community health care workers, incentives provided to community health workers, and. Third, provision of non-pharmacological intervention, attributed to counseling services on reducing heavy exercise and alcohol and sign and symptoms of tuberculosis reduce loss to follow up, saving time and cost among the beneficiaries for other economic activities and provision of non-pharmacological intervention**Conclusion:** Digital adherence technologies need to support the existing direct observed treatment to achieve good adherence to treatment. Solving economic and structural barriers for achieving good adherence is of paramount significance.

Subtheme 5: COVID-19 pandemic**162. African Traditional/Herbal Medicine in the 21st Century: Research in this field at CTMDR-KEMRI, Kenya and a request for collaboration in the East African region****Corresponding Author:** Dr. Festus M. Tolo

Description: The role of Traditional/Herbal Medicine in primary health care in the East African region can never be over emphasized, especially due to its wide use and availability. Inadequate provision of conventional health care, more so during this period of COVID-19 pandemic, rejuvenates use. Therefore, an effective health agenda for the region, especially in view of the Kenyan Vision 2030 and the government's big four agenda encompassing Universal Health Coverage (UHC), can never be adequately achieved by orthodox medicine alone unless complemented with Traditional/Herbal medicine. The East African region has a wealth of biodiversity in medicinal plants and our ancestors had a way of co-existing with this valuable resource without necessarily destroying it, harnessing it for use as medicine, food and timber. Presently, and most unfortunately, most of it is being lost with knowledge of medicinal values eroding. This is despite the fact that advent of emerging and re-emerging new diseases and the difficulties being experienced in drug resistance, researchers still depends on this natural resource as a major raw material for identification of new management therapies. There is therefore a strong need for the conservation and scientific validation and documentation of the potential of this natural product as medicine. The Centre for Traditional Medicine and Drug Research (CTMDR) of the Kenya Medical Research Institute (KEMRI) is a major player in this field and has conserved over 100 medicinal plant species in different geographical localities in Kenya. The Centre serves as reference point for government on issues herbal/traditional medicine and collaborates in research, with both local and international, Universities and other like-minded Institutions. It has well established laboratories and expertise for evaluation of *in vitro*, *in silico* and *in vivo* aspects of any natural product against most common disease causing agents. The Centre is open for collaboration and is currently carrying out evaluation of selected medicinal plants repurposed for COVID-19 management. As a sign of competence, the Centre will share results of an *in vitro* evaluation of a medicinal plant product currently under testing for anti-Severe Acute Respiratory Syndrome-Coronavirus 2 (SARS-CoV-2) replication. The product is exhibiting promising anti-SARS-CoV-2 activity in a plaque inhibition assay (>80%) on normal mammalian cell lines at concentrations below CC₅₀ (Selectivity index > 10). This exemplifies the potential of Traditional/Herbal medicine and therefore the need to conserve medicinal plants, evaluate and document scientific evidence on medicinal values through collaborative initiatives within the region and beyond.

163. Assessment of Adverse Events Following COVID-19 Immunization in Greater Kampala, Uganda, June, 2021**Corresponding Author:** Allan Komakech

Background: Tracking of adverse events following immunization (AEFIs) is important for evaluating vaccine safety. During March 2021, Uganda began COVID-19 vaccination using the Astra-Zeneca vaccine. We assessed AEFIs in Greater Kampala, Uganda to track the safety of the new vaccine.

Methods: We used vaccination registers to identify persons who received ≥1 dose of the AstraZeneca COVID-19 vaccine during March 10-April 30, 2021. AEFIs were defined as an untoward medical occurrence after immunization (not necessarily causally related to the vaccine). Serious AEFIs were defined as any event considered life-threatening or resulting in hospitalization. We extracted telephone contacts for a systematic random sample of vaccinated individuals and conducted phone interviews with those who consented to collect data on demographics and details of AEFIs where they occurred.

Results: Among 374 subjects interviewed, mean age was 41 years (SD±13 years); 176 (47%) were female. Of these, 235 (63%) received only one dose and 139 (37%) received two doses. In total, 516 AEFIs occurred in 286 (77%) individuals, including in 255 (68%) individuals after the first dose and in 45 (32%) individuals after the second. The most common AEFIs were redness/pain/itching at the injection site (34%) and headache (32%). In total, 35 vaccination events (6.8%) resulted in medical care-seeking and six (1.2%) were classified as serious, involving vomiting/diarrhea (3), headache (2), and difficulty in breathing (1). Persons aged 20-29 years (AOR:4.4, 95% CI: 1.9-10.2), 30-39 years (AOR:3.5, 95% CI: 1.8-6.9 and 40-49 years (AOR:2.5, 95% CI: 1.3-4.9) were more likely to develop AEFIs than those aged ≥50 years.

Conclusion: Most individuals experienced ≥1 AEFI. Serious AEFIs occurred after approximately one in 100 vaccination events. Younger age (≥50 years) was associated with AEFIs. We recommend prospective studies to fully understand adverse events following AstraZeneca COVID-19 vaccination in Uganda.

Key words: Assessment, COVID-19, Adverse events, Greater Kampala, Uganda

164. Burnout and Vicarious Trauma among Healthcare Workers Caring For Covid-19 Cases in Kenya.**Corresponding Author:** Dr. Esther Mumbi**Background:** Healthcare workers caring for COVID-19 patients are at increased risk of adverse mental health effects. Those in Low-and Middle-Income Countries work in constrained environments and are now additionally burdened with caring for COVID-19 patients.**Objectives:** Our study aimed to: Assess the prevalence of burnout and vicarious trauma among healthcare workers caring for COVID-19 patients, assess their individual coping strategies and the institutional support they received to help them cope.**Methodology:** A cross-sectional online survey was conducted between 21st June 2021 and 8th July 2021. 96 healthcare workers caring for COVID-19 patients at Kenyatta National Hospital and Mbagathi County Hospital participated in the study. Burnout and vicarious trauma were measured using the Professional Quality of Life Scale (PROQOL). We also assessed their coping strategies and the institutional support they received.**Results:** Overall, none of the healthcare workers had low levels of burnout, 82% had moderate levels of burnout and 18% had high levels of burnout. 7% had low levels of vicarious trauma, 68% had moderate levels of vicarious trauma and 25% had high levels of vicarious trauma. Commonly employed coping strategies included: use of alcohol and other drugs to feel better, avoiding watching COVID-19 updates and isolating from family. Majority of the respondents strongly agreed that the hospital provided useful, accurate and timely information to educate them about COVID-19 and also provided access to psychological interventions and support for stress management.**Conclusion:** The study revealed a substantial proportion of burnout and vicarious trauma among healthcare workers, in spite of the institutional support they received. Mal-adaptive coping strategies employed may have contributed to the high prevalence. There should therefore be a focus of increasing and diversifying strategies to support the mental well-being of healthcare workers caring for COVID-19 patients.**165. Caring under COVID – 19: Is the Pandemic Changing Domestic Care giving Responsibilities and Relationships in Uganda?****Corresponding Author:** Brenda N Simbwa**Co-authors:** Dr. Godfrey E Siu, Juiana Naumo, Ian McDonnell, Brian Heilman**Background:** WHO declared COVID-19 a global pandemic on 11th march 2020 and gave guidelines for infection control and prevention globally. March 2020 Uganda enforced a lockdown encouraging people to implement social distancing. While the lockdown succeeded in containing the outbreak, it also caused significant damage to the social lives of people. We present findings from households in different settings in Uganda and sought to determine the impact of covid-19 on domestic care work their relations.**Methods:** We carried out a cross-sectional study and conducted phone interviews. Descriptive statistics were reported with frequencies for categorical outcomes and means and standard deviations for continuous outcomes. Graphs were used to describe the impact of COVID-19 on household income and family relations.**Results:** 1,110 surveys were completed between April and May 2021. The proportion of respondents that were able to cover their monthly basic needs dropped from 63.9% before the pandemic to only 25.1% during lockdown. There was a 50% decrease in the number of families able to afford 3 meals daily. Children's education, Employment and food were the most important concerns of the respondents. Slightly more women (33.5%) than men (31.9%) reported a general increase in the volume of domestic and unpaid care work in the household during the lockdown. Majority of the respondents (64%) reported that unpaid care work was equally shared in their households between men and women. Women on average spent 3 hours daily on domestic care work while men spent 2.9 hours. Increased tension and conflicts among adults, spousal relationships and in communities was reported**Conclusion:** We conclude that dealing with the COVID pandemic and in particular the lock-down period was stressful for households and affected their employment, income and ability to provide especially adequate food for their families. The COVID-pandemic did not significantly alter the gendered pattern of domestic and unpaid care giving, with women continuing to bear the greatest burden of care giving, although it appears that male caregivers became slightly more supportive.**166. Community mask wearing, predictors, experiences among rural households of Uganda: A mixed methods approach****Corresponding author:** Grace Biyinzika Lubega**Co-Authors:** Hilbert Mendoza, Juvenal Nkeramahame², Filimin Niyongabo, Joviah Gonza, Betty Nakachwa¹, and David Musoke¹**Affiliation:** Department of Disease Control and Environmental Health, School of Public Health, Makerere University, Kampala, Uganda, Department of Epidemiology and Social medicine, Faculty of Medicine and Health Sciences, University of Antwerp, Antwerp, Belgium

Background: Rural communities may be more prone to COVID-19 acquisition. Adherence to mask wearing has the potential to reduce this risk. However, there is limited information about level of adherence, barriers and motivators for mask wearing among the rural population.

Methods: This was a cross-sectional study that utilized both quantitative and qualitative data collection methods. The quantitative study employed a semi-structured interviewer-administered questionnaire to assess level of adherence, socio-demographics, knowledge, and perceptions towards mask wearing. The survey was conducted among 400 participants. Modified Poisson regression was used to obtain crude and adjusted prevalence ratios associated with mask wearing. Quantitative data analyses were performed using Stata 15.0 Statistical software. The qualitative study was used to enrich the understanding of the barriers and motivators of mask wearing. Seven focus group discussions with 52 community health workers were held to collect information on these barriers and facilitators. Thematic analysis was used to analyse the data. Quotations from the FGDs were as well reported. Qualitative data analyses were performed using NVivo Version 12.

Results: The quantitative study showed that, 70.8% (283/400) were adherent to face mask wearing. Furthermore, having adequate knowledge was positively associated with mask wearing (adjusted prevalence ratio (95% CI); 5.2 (1.19-8.56)). The qualitative results identified sensitization from health workers, provision of free masks and fear of the police as motivators to the use of masks. The most prevalent barrier to use of masks was limited accessibility to masks mainly due to poverty. Other barriers to the use of masks included financial constraints, health related discomforts, and corruption.

Conclusion: The practice of mask wearing was sub-optimal among Uganda rural populations. Challenges to use of masks include limited accessibility to masks, poverty, and corruption from police. Continuous provision of free masks and health educational messages promoting the mask wearing may increase this practice.

167. Coping strategies among postgraduate medical students of the Aga Khan University Hospital Nairobi during the COVID-19 pandemic: A cross-sectional survey

Corresponding Authors: Dr. Anne-Marie Githaiga

Background: World Health Organization (WHO) declared the coronavirus disease-2019 (COVID-19) a global pandemic. It has brought psychological pressure among healthcare workers (HCWs). It is necessary to monitor the psychosocial health impact and coping strategies of Postgraduate Medical Students (PGMS) in our setting. This will provide a theoretical basis for psychological interventions for future crises and to provide a basis for the promulgation of national and governmental policies.

Aim: To investigate the coping strategies of PGMS during the COVID-19 pandemic.

Methods: We performed a cross-sectional survey. Study participants filled in an online BRIEF-COPE questionnaire. This was analyzed to assess the coping strategies adopted by PGMS.

Data analysis: An analysis of descriptive statistics was conducted. A univariate analysis (Nonparametric test) was used to explore the significant associations between sample characteristics and the coping strategies employed during the COVID-19 pandemic. Statistically significant variables were screened and included in multivariate logistic regression analyses. The estimates of the strengths of associations were demonstrated by the odds ratio (OR) with a 95% confidence interval (CI). Spearman's correlation coefficient, r , was used to evaluate the association between department and level of exposure and coping mechanisms. A two-tailed $p < .05$ was considered statistically significant.

Results: A total of 32 respondents were analyzed. Female students used the approach strategy more than their male counterparts. Students in their first and second years of study tended to use more approach strategies compared to students in the third and fourth years of study. Majority of the respondents, 67%, use approach coping strategies. Departments that were perceived to have a higher exposure to COVID-19 patients such as the Department of Medicine and Surgery were more likely to use approach coping mechanisms.

Conclusion: The mental health of Post-Graduate Medical Students is significantly affected when faced with public health emergencies such as the ongoing COVID-19 pandemic. Evaluating the coping strategies employed by these students may assist teachers and administrators to provide them with appropriate support to manage their stressors, maintain effective training, and ensure service provision for patients. Recommendations are made for national governments to collaborate with universities to provide high-quality, timely, crisis-oriented psychological services to trainees.

168. COVID-19 Cluster Investigation in Achwa Hydroelectric Power Plant, Pader District, Uganda- October 2020

Corresponding Author: Josephine Namayanja

Background: Achwa Hydroelectric Power Plant (AHPP) in Pader District, Uganda introduced multiple measures starting in April 2020 to reduce the risk of COVID-19 introduction and spread, including testing of visitors and returnees to AHPP for COVID-19 on arrival, and regular hand washing, face mask use and social distancing. Despite these measures, on October 3,

2020, a cluster of COVID-19 cases was reported at AHPP. We investigated to identify factors facilitating spread of COVID-19 and recommend control measures.

Methods: A confirmed case was a positive RT-PCR for SARS-CoV-2 in a person who lived, worked at, or visited AHPP from August 1-October 5, 2020. We reviewed routine COVID-19 test results from medical records at AHPP and actively searched for cases to develop the line list. We performed environmental assessment and conducted a retrospective cohort study to identify risk factors for transmission.

Results: We identified 105 case-persons residing in 6 work camps at AHPP (overall attack rate (AR)=20%); mean age was 32 years (range, 18-60 years). The index case-person delivered supplies to the plant from Kampala and left after his sample had been taken on August 10; his positive test result was returned on August 17. The second case-patient was a plant employee who had travelled to Gulu City 10 days before his sample was collected on August 18 and tested positive on August 25. One camp, Alnour camp, was both the most congested, with all workers sharing a single dining area, and the most affected (AR=61%) of the 6 camps. Risk was higher among persons sleeping >2 per room (aRR=2.4, 95%CI=1.5-4.1) than those who slept ≤2 per room.

Conclusion: Long test turnaround time for the index case and crowded sleeping and living conditions facilitated the spread of COVID-19 at AHPP. We recommended decongesting sleeping areas at the power plant and continued surveillance for early detection and management of infections.

Keywords: COVID-19, Power plant, Pader district, Uganda

169. COVID-19: Knowledge, Perception of Risk, Preparedness and Vaccine Acceptability among Healthcare Workers in Kenya

Corresponding Authors: Dr. Hafso Mohamed Abdulle

Co-authors: Dr. Moses Muia Masika, Prof. Julius Oyugi

Background: COVID-19 is a disease that is highly contagious. Health workers are at a higher risk of contracting the disease. Inadequate knowledge on COVID-19 and poor practices and preventive measures among healthcare workers can lead to the rapid spread of this disease.

Broad Objective: To assess the level of knowledge, perception of risk, preparedness and vaccine acceptability for COVID-19 among healthcare workers in Kenya.

Methods: An online cross-sectional study was conducted from December 2020 to January 2021. The study targeted health workers from both public and private health institutions across the country. Study participants were drawn from various healthcare cadres. We used convenience sampling method to enroll healthcare workers into the study. A link to an online self-administered questionnaire hosted on the Research Electronic Data Capture application (REDCap) was disseminated to health workers across the country via text messages and emails. SPSS was used for analysis of data.

Results: A total of 997 participants were enrolled in the study. About half (53%) of the participants were female. The mean age was 36.54 years (SD = 8.31) and 46% of the participants were aged between 31-40 years. About half (55%) worked in county facilities and 64% of the respondents had at least a bachelor's degree. Overall knowledge score was 80%. Most of the health workers (89%) perceived that they were at high risk of infection. Seventy-two percent felt that they were either partially or fully prepared to handle patients with COVID-19. Overall, 71% of all health workers would take a vaccine.

Conclusion: Knowledge of healthcare workers on clinical manifestations and risk factors for development of severe COVID-19 was good. With good knowledge, the health workers are in a good position to manage and control the spread of COVID-19. However, a majority of the HCWs perceived the risk of infection with COVID-19 as high and a significant number of them felt that they were not fully prepared to handle the pandemic. The perception of high risk of infection as well as feeling of being unprepared can affect the psychological well-being of the health workers, thus, affecting their service delivery. A majority of health workers (about two thirds) were willing to take a COVID-19 vaccine if provided with one. COVID-19 vaccination was introduced in Kenya after this study was conducted, we therefore recommend another study on vaccine uptake and its facilitators or barriers among healthcare workers in the country.

Keywords: Kenya; knowledge; risk perception; preparedness; vaccine acceptability; COVID-19; health workers

170. COVID-19 management outcomes at Kamenge Teaching Hospital: Study of confirmed and severe cases COVID-19 patients.

Corresponding Authors: Irakoze Jean Bertrand

Co-authors: Yves Nsavyimana, Irankunda Kévine, Niyongabo Cédric, Nkamicaniye Arsène, Nsengiyumva Olivier, Nyandwi Joseph

Description: COVID-19 pandemic was first reported in Burundi in late March 2020. Since then, up to 8 June, there have been 4,905 confirmed cases throughout the country, with only six reported deaths numbers that still seem lower than those observed in other countries. The objective of our study was to analyze the impact of hospital management of severe COVID-19-

related cases throughout the covid 19 pandemic period at Teaching Hospital of Kamenge.

Methods: We collected data on hospitalized cases at Kamenge Teaching Hospital (KTH) with a confirmed PCR or rapid test for covid 19 while taking into account clinical and radiological signs suggestive of covid. Patients were sorted based on their common clinical presentation of acute respiratory distress from January to July 2021.

Results: We had a total of 35 patients who presented with acute respiratory distress. The average age was 55 years. 28.57% of patients were overweight (BMI=Body Mass Index, 25-30) and 14.29% were obese (BMI >30). More than a half of them (51%) were from the capital city, Bujumbura. In addition, all these patients had an oxygen partial pressure below 90%, fever was present in 60% of the cases while 42.85% and 31.43% had diabetes and hypertension respectively. All our patients were treated with amoxicillin-clavulanic acid, injectable anticoagulant (Enoxaparin), dexamethasone and oxygen therapy. Mortality was observed in 25.71% of cases. Mortality rate was statistically linked with diabetes (p-value=0.0255).

Conclusion: Severe cases of COVID-19 are a reality in Burundi and affects the older age group (>50 in our study) (in relation to Burundian life expectancy). People with comorbidities are more likely to present with severe forms and mortality remains high despite treatment initiated.

Keywords: COVID-19; KTH; comorbidities

171. COVID-19 Pandemic and the Panic Buying Psychology

Corresponding Authors: Ndirangu Ngunjiri

Description: The COVID-19 pandemic prompted widespread panic buying, with people stripping stores of toilet paper, thermometers, face masks, condoms, hand soap, medications just about anything they fear will soon disappear from the shelves, a type of herd behavior whereby consumers buy an uncommonly huge number of products. This article aims to deepen our understanding of the nexus between COVID-19 and panic buying, done in various countries globally, this paper formulated a theoretical model that linked the determinants of panic buying and analyzed their interrelationships. The present study extended our understanding of consumer behavior changes during the COVID-19 pandemic. Subsequently, data were collected from 508 (age range 18–64) consumers through an online survey questionnaire. The questionnaires were distributed and data was analyzed using the SPSS method and presented in tables showing their rankings, frequencies, and percentages. The findings of the study suggest panic buying is fueled by anxiety and a willingness to go to lengths to quell those fears: like queuing for hours or buying way more than you need and people worry about regretting not buying something. Consumer behavior toward necessities was predicted by anxiety and COVID-related fear, whereas consumer behavior toward non-necessities was predicted by depression. Furthermore, consumer behavior toward necessities and non-necessities was predicted by personality traits, perceived economic stability, self-justifications for purchasing, and partially mediated by consumers' anticipation of regret. Consumers feel out of control about many aspects of the pandemic, but they do have control when they choose to stock up on things. This article expands on the current theoretical understanding of panic buying behavior, giving insights into the possible measures and solutions that policymakers and relevant stakeholders can uptake to manage panic buying in future a pandemic or health crisis. The research recommends the best way to reduce this cycle of panic buying is for people to feel like there are downsides to buying too much. Results could be helpful to develop marketing strategies that consider psychological factors to meet actual consumers' needs and feelings.

Keywords: COVID-19; Panic Buying; Health Belief Model; Perceived Scarcity

172. Epidemiological Assessment of COVID-19 Cluster among Attendees of a Church Activity in Omoro District, Northern Uganda, October 2020

Corresponding Author: Patricia Thiwe

Affiliations: ¹Uganda Public Health Fellowship Program, Kampala, Uganda, ²Ministry of Health, Kampala, Uganda, ³Division of Global Health Protection, Centers for Disease Control and Prevention, Kampala, Uganda

Background: On 2 October 2020, a cluster of COVID-19 infections was reported in Omoro District in northern Uganda. The district has a total population of 196,400 people. Despite government directives banning public gatherings, many infected persons had reportedly attended a farewell party at Church X on 5 September. We investigated to determine infection source, understand outbreak magnitude, and identify risk factors to inform COVID-19 control measures.

Methods: We defined a case as a positive PCR for SARS-CoV-2 virus in a respiratory sample from an Omoro District resident, taken from 4 September-5 October 2020. We reviewed records to make a line list and interviewed the index case-patient, church farewell party attendees, and several community members to ascertain possible exposures. We conducted a retrospective cohort study among 62 farewell party attendees.

Results: Among 23 case-patients (74% male; median age 36 years), 21 (91%) had exposure to a single index case-patient (Case A) before their illness onsets. Fifteen attended the farewell party (party attack rate=24%) and six lived in Case A's village

(different from the church village). Case A had onset on 23 August. Case A had no travel history but had multiple traveller contacts through work. Case A was a highly active Church X member, attended multiple Church X services in August and attended the farewell party while ill. A second case-patient, Case B, had onset on 1 September. Case B was also an active Church X member, frequently interacted with Case A, and attended the farewell party. All other case-patients associated with the party had onsets from 8-29 September. Close contact with Cases A (RR=2.4; 95% CI=1.1-5.8) or B (RR=2.6; 95% CI; 1.2-6.7) at the farewell party was associated with infection.

Conclusion: A social event at a church and lack of adherence to government directives provided an opportunity for spread of COVID-19 to at least 13 persons. We suggested improved adherence to national guidelines and government directives for COVID-19.

173. Integrating social science approaches in response to COVID-19 pandemic

Corresponding Authors: Tusajigwe Erio

Description: For centuries, biomedical approaches have been the mainstay approaches during epidemics preparedness and responses. Statistical figures on incidence prevalence and mortality have guided standard operating procedures. These same approaches were adopted following WHO medical directives to the global governments when COVID-19 erupted. African governments were caught unprepared despite the lesson learned from previous outbreaks like Ebola and adopted the western standardized medical approach. People in African countries highly resisted the standardized approach recommended by WHO. But not much effort has been directed towards understanding the reasons for resistance. This paper aims to document the importance of integrating social science approaches in understanding the causes for the resistance during the COVID-19 pandemic. The researcher, using ethnographic methods, conducted a review of emerging literature which included social media discussions, formal media reports, press releases, and real-time observations in the Tanzanian communities during burials. The findings show that Tanzania suffered from disintegration between three main pillars (the government, health professionals, and the public) thus, paralyzing medical intervention efforts in fighting against COVID-19. The unification of these pillars is a bedrock when responding to disease outbreaks for minimizing misinformation and increases the acceptability of biomedical interventions. Tanzania highly experienced public mistrust towards the government, biomedical approaches, and western interventions. The proliferation of misinformation and communication breakdown between and within the pillars fueled people's distrust. People resisted the WHO preventive recommendation measures (mask-wearing, social distancing, hand washing, lockdown) and vaccination due to what was associated with pre and post-colonial effects and lack of sensitivity to socio-cultural and socio-economic consequences. Hence, there is a clear need for social science expertise in generating knowledge that will help leverage the social and medical consequences during epidemics. In African settings, medical experts severely perceive cultures, beliefs, norms, and behaviors as the main barriers to biomedical interventions during epidemics response. Conversely, epidemics like Ebola and now COVID-19 are both biomedical and social problems that require a holistic approach when dealing with them.

Key words: Epidemics, preparedness, response, social science, medical interventions, COVID-19, Tanzania

174. Knowledge, attitudes and Practices of Medical Student on Covid 19 in Burundi

Corresponding Authors: Nsavyimana Yves Jacket

Co-authors: Irakoze Jean Bertrand, Nyandwi Joseph, Nkamicanaye Arsène, Nsengiyumva Olivier, Iradukunda Kévine, Niyongabo Cédric

Background: COVID-19 first appeared in China in late 2019 and was declared pandemic by the WHO in early 2020. The first cases in Burundi were reported in late March 2020. Our study aimed to find out knowledges, attitudes and practices on Covid-19 of medical students who have already started their hospital practices.

Methods: We collected data on a pre-designed questionnaire and an online survey. The questionnaire was given randomly in classes and everyone could participate as he consents. We analyzed socio-demographic data as well as knowledge, attitudes and practices on COVID-19 using epiInfo7.2.

Results: Out of the 3 universities with medical faculties in the whole country; we were able to collect responses from 78 students; 50% were from the University of NGOZI, 46.15% were from the University of Burundi and others from Hope Africa University. Males were represented at 69.23%. Only 34.62% of our respondents claimed to have received training on COVID-19 but many claimed to have learned it from various sources. In general, the majority of students had advanced knowledge on Covid but 78.21% had full knowledge of the means of propagation; only 21.79% knew more about the risk of complications, 64.10% claimed to follow the barrier practices against COVID-19 while almost 41.56% washed hands less than once an hour. In 49.35% of cases, the students stated that they throw away masks in the garbage after use. Knowledge, attitudes and

practices did not depend on the university (P value=0.8719). A large majority, 87.18% indicated that they feared getting infected with COVID-19 during internship.

Conclusion: Medical students in Burundi have advanced knowledge regarding COVID-19 but still lack some necessary and useful information to counter the spread of the disease and the risk of complications. A large majority have fear of getting infected with COVID-19 in hospitals. Also, self-information takes precedence over training as a source of information on this disease.

Keywords: Medical Students, COVID-19, Burundi

175. Quality management systems, a bed rock for resilient Laboratory systems in the COVID-19 dispatch: A TASO Soroti regional project experience

Corresponding Authors: Otaala Timothy

Co-authors: S Alwedo; A Oteeni; M Naluguza; M Matovu

Back ground: MOH-Uganda established the hub system in 2011 to transport samples from peripheral facilities through hubs to centralized referral laboratories. During the COVID-19 pandemic, integration of COVID-19 sample transportation into the routine sample transportation system, necessitated an assessment of the hubs to establish if they met the criteria for proper sample transportation. We conducted an assessment of 9 hubs that are implementing Quality management systems and enrolled on Strengthening of Laboratory Management towards accreditation (SLAMTA) in Teso sub region to establish gaps and guide continued support

Methodology: A cross-sectional study was conducted by Bio risk management (BRM) auditors using a rapid assessment checklist in April 2020 with a dash board and remediation plan. The checklist was divided into section A (Bio safety), B (Infrastructure), C (Logistics), D (Quality assurance, records and information management) and E (Human resource management) considerations. Each section had a couple of questions and the impact exposure of each hub laboratory was automatically generated with a risk exposure score and categorized as low (< 33%), moderate (34-66%) or high (67-100%).

Results: 100% (n=7) of the hubs had an average moderate exposure level of 41% for Bio safety considerations, 14% (n=1) of the hubs did not meet infrastructural considerations, 100% of the labs had low exposure for Logistical considerations, 100% of the labs had moderate exposure level for Quality assurance, records, information management, and Human resource management. 71% (n=5) had an identified hazard of no Bio safety cabinet.

Conclusion: Laboratory hubs in Teso sub region have a moderate exposure level due to functional Quality management systems with a high identified hazard of no Bio safety cabinet in 1 facility. This could be the same across other hubs nationally. Quality management systems are therefore significant in the response to epidemics especially COVID-19

176. Quality Verification and Traceability for COVID-19 Vaccines

Corresponding Author: Cathryn Meurn

Description: As COVID-19 vaccine distribution ramps up worldwide, counterfeit vaccines have been found, presenting significant risks to the public health response and financial loss. The need for product quality verification and traceability extends beyond COVID-19 vaccines to all health products. Falsified vaccines and medicines cost low- and middle-income countries (LMICs) \$30billion/year and over \$200billion globally. Investments in verification and traceability can protect beneficiaries from counterfeit health products while strengthening digitally enabled supply chains for all public health use cases. The Verification & Traceability Initiative will establish a global database of manufacturer health product information, called the Global Trust Repository (GTR) that can be used to verify if a scanned health product is authentic or counterfeit. Initially, the GTR will be populated with COVID-19 vaccine serial numbers from vaccine manufacturers, to address the immediate risk of counterfeit COVID-19 vaccines from causing harm and financial loss. The GTR can also be populated with any batch and serial numbers for any type of health products that use the GS1 data standard for supply chain.

Edits: Thank you for the comments. The Verification & Traceability Initiative is working through the COVAX Facility and is already in direct communication with major COVID-19 vaccine manufacturers to obtain serialized product data directly from the manufacturers. This work was started to address the priority risk of falsified or diverted COVID-19 vaccines, identified by the COVAX Facility. We are happy to invite representatives from two countries that are participating in this initiative already, Rwanda and Nigeria, in the panel, as well as representatives from development partners such as GAVI and UNICEF who are procuring vaccines on behalf of countries through the COVAX Facility.

177. Results from a Knowledge, Attitudes, Practices and Perception Survey conducted in the Early Phase of the Covid-19 Pandemic, Kenya, 2020

Corresponding Authors: Joyce Wamicwe

Co-authors: Carol Mukiira, James Kariuki, Lilian Mayieka, Leyla Abdullahi, Cosmas Mugambi, Rose Oronje, Rachel Githiomi, Peter Wanjohi, Charles Nzioka, Jennifer Orwa | David Kariuki

Background: On 11 March 2020, the World Health Organization officially declared the novel Coronavirus disease 2019 (Covid-19) a pandemic. Two days later on 13 March 2020, Kenya reported its first case of Covid-19. Key interventions based on four pillars: testing, isolation, treatment, and tracing were rolled out by the Government. We conducted a Knowledge, Attitudes, Practices and, Perception (KAPP) survey to inform uptake of the interventions and provide feedback for further planning.

Methods: This was a cross-sectional survey that targeted 2,309 adult respondents and was carried out in 21 counties between June and July 2020. A standard validated questionnaire was administered to a sample drawn from the GeoPoll database, a mobile surveying research company. This was done by trained research assistants using the Computer Assisted Telephone Interviews (CATI) method. Analysis was conducted using SPSS 21. Descriptive statistics were used to present data from univariate analysis. Multivariate analysis was carried out to test for any statistical associations between the KAPP elements and selected socio-demographic variables. Relevant ethical and regulatory approvals were obtained.

Results: A total of 2,425 respondents were interviewed. All respondents reported having heard about Covid-19, mainly through digital media. 62% of the respondents indicated needing more information on Covid-19 treatment and prevention. 95% of respondents reported willingness to share their COVID-19 test results. However, 7 out of 10 respondents were not comfortable being close to someone showing COVID-19 symptoms. Respondents reported sub-optimal observed levels of interventions being implemented in their neighborhoods with social distancing at 36%, hand hygiene at 48%, masking at 51%, and observation of dusk-to-dawn curfew at 56%. 13% of the respondents reported they had experienced COVID-19-like symptoms with purchasing of over-the-counter medication being the main action taken at 33%. 74% of respondents felt that the national COVID-19 interventions were adequate with most coping well. However, 33% indicated they had lost their source of livelihood.

Conclusions: Basic knowledge on COVID-19 was high but fear of Covid-19 was evident. Social distancing was the intervention most poorly implemented. Pharmacies were the first port of call for a third of those who depicted Covid-19-like symptoms.

Recommendations: There was a need to review, diversify and intensify public education on the importance of consistency of adhering to the interventions during the Covid-19 pandemic and what to do if symptomatic. Increase collaboration with local pharmacies on symptomatic screening and appropriate referral for COVID-19 testing.

178. Strengthening the use of health research in policy and decision-making process: Implications for COVID-19 response in Kenya

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Co-authors: Ms. Carol Mukiira, Dr. Rose Oronje

Introduction: The role of evidence in decision-making is increasingly being recognized as crucial in improving the quality of policy, programme decisions. One of the major barriers to sustained use or consideration of evidence in decision-making is weak individual and institutional capacities to ensuring effective response to the COVID-19 pandemic, future outbreaks and other crises. The study sought to understand the individual and institutional capacity needs for evidence informed decision-making (EIDM) within Kenya's top-level and mid-level decision-makers within Ministry of Health (MoH), leaders of development agencies, research and training institutions.

Methodology: The study employed a qualitative approach where 68 in-depth interviews were conducted using a purposive sampling technique for each category of the study subjects. Data collection was carried out between January 22, 2020 and February 12, 2020. Data were collected through in-depth interviews using semi-structured interview guides and the interviews were coded using the Dedoose software for further analyze the data.

Results: Majority of respondents (9/10) reported that they had knowledge and capacity in conducting research but cited lack of access to research evidence as one of the major barriers to the use or consideration of research in decision-making. Importantly, the respondents alluded to the need for improved communication and packaging of research for easy communication to policy makers. The results also show that, health sector within the government as an example, Kenya has made some progress in efforts to promote and institutionalize the use of research and other evidence in decision-making. The EIDM culture is enhanced through a number of activities including providing technical assistance to Division of Research and research institutions willing to take forward the institutional reforms needed to improve and increase their researchers' involvement in government decision-making processes.

Conclusion: Institutional capacity is weak and therefore unable to support EIDM. Strengthening institutional capacity for EIDM needs to be prioritized for better decision-making and ultimate improvements in health system performance during the current and future pandemic preparedness and response.

179. Unlocking MNO Data to Enhance Decision-Making and Emergency Response Efforts in Malawi

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Description: The rise of big data and the internet of things has led to unprecedented amounts of data generated and stored about individuals, including Customer detail records (CDR) from mobile network operators (MNOs). MNO data was selected in particular for this project due to its enormous potential to improve provision of public services, and its prevalence in the Malawian information landscape. Mobile phone coverage figures are listed below.

From the [GSMA 2019 report](#): page 14/15:

- Mobile penetration: 29.75% of the overall population
- Smartphone penetration: 10.21% of the overall population
- Gender gap: Data from the recent DHS survey finds that male ownership is 52% and female ownership is 33%
- Rural Vs urban: The divide is most pronounced in rural areas, where 26% of women report owning a mobile phone compared to 47% of men.

In terms of rural versus urban utilization of MNO data for emergency response, coverage figures indicate the disparities between rural and urban areas, especially in terms of gender inequalities. MNO data is not used as a single source of truth to inform emergency response, but is rather an additional source of data for triangulation. In Malawi, The MOH worked with Cooper/Smith, and Norwegian NGO Luke International to optimize decision-making for the national health system by leveraging MNO data combined with other datasets to develop an analytics model that generated dynamic maps with optimal site locations for all new health posts across Malawi. With the onset of the COVID-19 epidemic, the Ministry of Health leveraged existing models and additional MNO data to respond to the pandemic with a data-driven approach. MNO data was used to generate dynamic “mass event” dashboards that gave the Ministry visibility into high-risk areas for COVID transmission. This round table session, facilitated by public health and data experts from Malawi, will present the country’s experience leveraging MNO data to enhance decision-making and improve their response to the epidemic. The session will describe the responsible and ethical approach that the Ministry and its partners took to accessing and using MNO data, the processes by which the Ministry and its partners obtained regulatory and ethical clearances and engaged with the MNO, how dynamic models and dashboards were developed.

180. Use of a toll-free call center for COVID-19 response and continuity of essential services during the lockdown in Greater Kampala, Uganda, 2020

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Background: The development of call centers during public health emergencies can reduce unnecessary calls to emergency telephone systems. On March 21, 2020, the first case of COVID-19 was confirmed in Uganda. A total lockdown was initiated on March 30 and gradually lifted May 5–June 30. On March 25, a toll-free call center was organized at Kampala Capital City Authority. We documented its set up and analyzed key concerns raised by the public.

Methods: Two hotlines were disseminated to the public in Greater Kampala. The call center was open 24 hours a day and 7 days a week, and manned by a team of call attendants, clinicians, epidemiologists, and others. Callers seeking access to health services were transported to the nearest health facility as determined by the team. We abstracted data on incoming calls from March 25–June 30, 2020. Demographic data was not retrieved and no comparative assessment was done between the two hotlines. We summarized call data and conducted descriptive analyses of public concerns raised during the different lockdown phases.

Results: Among 10,167 calls, 91% were Greater Kampala residents, 65% involved access to health services, 15% access to social services, and 13.5% COVID-19-related issues. One-third (33%) of the 6,578 calls about access to health services were requests for ambulances (unrelated to COVID-19), 18% were persons stranded at health facilities and 15% mothers in labor. In total, 76% of the 1,565 calls about social services were requests for food and relief items and 13% were about illegal price hikes from businesses. Fifty-three percent of the 1,375 calls about COVID-19 response were seeking COVID-19 disease-related information and 26% were reporting suspected cases.

Conclusion: The call center was utilized to obtain information on COVID-19 response and make inquiries on health and social services. It was more utilized in providing information on access to essential health services compared to the primarily intended

COVID-19 response. There was limited issue resolution tracking and as a result, the effectiveness of the call center in addressing issues is still unknown. A call center can facilitate other actions or developments and should be an integral element, during an epidemic-related lockdown.

181. Using digital platforms in addressing dis-information and hesitancy towards COVID-19 vaccination in Uganda.

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Co-authors: Louis Kamulegeya, John Mark Bwanika, Shilpi Chakraborty, Pamela Acom Charlotte, Davis Rotich

Background: Coronavirus disease 2019 (COVID-19) dis-information and lack of credible sources of scientific information remain major contributors to low uptake and hesitancy towards vaccination in many countries. Various efforts, both global and local are geared towards optimal community engagement for sensitization, education and debunking of myths. In this report, we present findings of a digitally supported model to health information dissemination during COVID-19 pandemic in Uganda.

Methods and Setting: Analyzed data were obtained from records of a 24/7 telemedicine platform operated by The Medical Concierge Group (TMCG). TMCG is the local digital health partner for a United States International Agency for Development (USAID)-funded consortium working on Social Behavioral Change Communication (SBCA Activity). As part of the consortium work, TMCG operates a toll-free hotline, USSD access code, two-way SMS channel and social media pages. We conducted a retrospective quantitative and qualitative analysis of the telehealth data of the period from 23rd April to 31st July 2021 using Microsoft Excel.

Findings/Results: We analyzed 109 voice calls and 1,090 SMS COVID-19 inquiries, median age was 23 (12-89) years; Female (288, 24%) and Males (911, 76%). COVID-19 inquiries were mainly on myths- 5.4%, vaccination- 41.0%, prevention- 21.8%, diagnosis and treatment- 8.4%, clinical presentation- 23.4%. The vaccination myths covered various themes including safety profile among breastfeeding women, HIV, hepatitis, and asthmatic patients. e.g., 'Can an HIV positive person take the vaccine'? Concerns on the vaccine causing deformities and death were common, and the vaccine being fake and expired. These were addressed in real time using voice and SMS platforms. In addition, specific messages were designed based on the inquiries and disseminated on radio and social media platforms for a wider audience.

Conclusion: Digital health platforms can be a feasible means to offer the public factual and credible COVID-19 vaccine information which can boost vaccination at scale.

182. Vaccination status and COVID-19 disease symptom severity at admission: A hospital based retrospective cross-section study in Kampala, Uganda

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Background: Coronavirus disease 2019 (COVID-19) vaccines can prevent disease or at least protect from the severe forms for the majority of those that receive it. Local evidence for this protection is critical in mass sensitization, and uptake of the vaccination programs. We report our findings from comparing symptom severity with vaccination status among hospitalized COVID-19 cases at two hospitals in Kampala, Uganda.

Methods and setting: A retrospective cross-sectional study was done at two private hospitals (Kampala Hospital-KH & Lubaga Hospital- LH) by reviewing medical files of COVID-19 cases from March 2021 to July 2021. These hospitals have a bed capacity of 109 and 237 respectively. A hospital administrative clearance was sought to review patient records. The study adopted the definitions of mild to critical classification of symptoms from American College of Emergency Physicians: Mild with signs and symptoms of COVID-19 but not breathless, moderate with signs and symptoms of lower respiratory tract and SpO₂ ≥94%, Severe with raised respiratory rate and SpO₂ <94%, and critical with features of respiratory failure. Data analysis was done using STATA.

Results: A total of 245 cases were reviewed, of which 131(53%) were males and 114(46%) females with a median age of 50 (IQR 39-64y). Of these, 12(5%) were vaccinated (V), (4(2%) partly and 8(3%) completely immunized), and 233(95%) were unvaccinated (UnV). In terms of severity, there were 36(4V, 32UnV) mild, 49(3V, 46UnV), 128(5V, 123UnV) and 37(0V, 32UnV) critical cases. The observed mortality, 58(23%) patients, was amongst the unvaccinated cohort.

Conclusion: Despite the low vaccination uptake, it was evident that there was a better outcome among the vaccinated compared to the unvaccinated. Further longitudinal cohort studies are recommended to assess aspects like immunopotency and duration of protection.

183. What Kenyans know and believe about Covid-19 vaccines: Evidence from a nationwide survey**Corresponding Authors:** James Mbugua,**Co-authors:** Dr. James Ciera Rachel Githiomi, Ben Taylor¹, Melania Omengo¹, Sarah Mwangi¹, Risha Chande¹, Aidan Eyakuze¹, Dr. Joyce Wamicwe², Dr. David Kariuki², Dr. Charles Nzioka², Peter Wanjohi² and Dr. Cosmas Mugambi²**Background:** The Coronavirus pandemic has caused millions of deaths, lasting health problems among some patients, and untold economic damage. As the pandemic continues to evolve, the scientific and policy response seeks to adapt and find new solutions. The most prominent of these is vaccination. Almost a third of the world population has received at least one dose of a vaccine against Covid-19, and a quarter are fully vaccinated. However, over 1.4% of the population in low-income countries have received a first dose. In Kenya, 2.2 million have received a first dose, almost half of whom have received a second dose¹. The objective of the paper is to answer the following questions: (a) how do citizens see the vaccines? (b) Are they confident that vaccination is safe and effective? (c) Are there any widespread misconceptions? (d) Are Kenyans willing to have the vaccination?**Methodology:** This paper presents data on Kenyans' knowledge, attitudes and practices on matters relating to Covid-19. The data comes from a nationally representative sample of 3,000 respondents, conducted between 26 June and 14 July, 2021. The sample was pooled from different national surveys that used multi-stage stratified sampling approach. Respondents consented prior to participating in the study.**Results:** 93% of Kenyans know that the vaccines offers protection against Covid-19 while 76% say that if a vaccine were offered to them, they would be willing to take it. However, only but about 2 out of 10 Kenyans report that one or more household members has been vaccinated against Covid-19. Lack of trust was mentioned as the biggest reason for not willing to receive the vaccine. This has partly driven by widespread misconceptions where 31% of Kenyans believe that Covid-19 vaccine development was rushed and 28% say the side effects of the vaccine are dangerous.**Conclusion:** Although awareness level is high, vaccine uptake is still low. Vaccine unavailability and misconceptions are the major driving force against the uptake. The Government rollout strategy should continue and open up access to all Kenyans. Public health education campaigns should focus more on safety and effectiveness of Covid-19 vaccines. Ongoing monitoring of vaccine hesitancy should focus more on misconceptions and knowledge gaps.

SYMPOSIUM ABSTRACTS

S1. Health Technologies in Africa: Introducing the Platform for Dialogue and Action on Health Technologies in Africa

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Symposium Synopsis

The African Union (AU)'s development road map, Agenda 2063, recognizes the critical role of technology as a catalyst for growth on the continent. The AU has gone further to prioritize technologies that have potential to contribute to changing the continent's disease trajectory. However, the development and testing of health technologies in Africa is undermined by an interaction of various factors including: opposition to the development of some of the technologies (such as gene drives for Malaria elimination); limited African voices and engagement in the development of these technologies; limited knowledge among many Africans on these technologies; and low priority and inadequate investments by African governments in the development of these technologies. To respond to this challenge, the Platform for Dialogue and Action on Health Technologies in Africa (Health Tech Platform) has been established to promote and facilitate informed, objective, open and balanced discussions on development and use of emerging transformative tools and technologies to address health challenges in Africa.

The session will introduce the Platform for Dialogue and Action on Health Technologies in Africa to scientists in order to create awareness among the scientists on how they can use the Platform to advance their research and innovation efforts for the elimination of diseases in Africa. Further, the session will discuss the results of a recent landscape and political economy analysis of emerging health technologies in sub-Saharan Africa. Among others, the results.

S2. Weathering The Pandemic Storm: Building Strong, Sustainable And Equitable Immunization Systems In East Africa

Background: Prior to the COVID-19 pandemic, Africa including the East African region had made immense progress in immunization. But despite this progress, more than 30 million children in Africa still suffer from vaccine preventable diseases (VPDs), according to The World Health Organization (WHO). With the onset of the COVID pandemic, countries in the region are also reporting a potential outbreak of circulating vaccine derived polio virus (CvDPV) in addition to other vaccine preventable diseases including measles and yellow fever. As the response to COVID-19 continues, countries must act now to protect immunization services, to further minimize disease outbreaks and loss of life. This includes, facilitating urgent catch-up programmes in places where services have been disrupted, ensuring strong supply chains, disease surveillance and training health workers.

The COVID-19 pandemic is putting years of progress at risk and has put health systems and specifically immunization programs under more pressure as now both children and adults require immunization services. Millions of children have missed out on immunization due to disruptions brought about by lockdown measures, fears and rumors, with marginalized populations disproportionately affected. In the East Africa region, out of a population of 177m from the five countries of Burundi, Kenya, Rwanda, South Sudan, Tanzania and Uganda, just about 15m people have received at least a first jab of the COVID Vaccine as of October 7th 2021 (EAC, 2021). While countries in the East Africa region are working to ensure health, systems are resilient and immunization services are protected to prevent any potential backsliding on the gains made on routine immunization and COVID vaccination thus far, many challenges remain;

Inadequate financing for immunization: Solid financing is one of the several elements required to ensure continuity in services, and to fund continuous increases in coverage, quality and access to both traditional and newer vaccines like the COVID 19 vaccine. It is an essential contributing factor to an immunization program's ability to achieve current and future goals for access, utilization, quality, safety, and equity. While governments in the region have made significant strides to increase funding for immunization programs over the last five years, further commitment is needed to achieve full financing and national ownership of immunization programs. Through the ADI, countries committed to increase and sustain domestic

investments and funding allocations to meet the cost of traditional vaccines, fulfill new vaccine financing requirements, and provide financial support for operational implementation of immunization activities. Countries are moving at various speeds as regards financing. What is the status in the region and what more needs to be done?

Inequity: Countries in the region have improved vaccination coverage in the past decade, but inequalities persist: the poorest, least educated, and rural communities are left behind. Programming has focused on increasing coverage and reaching the hardest-to-reach children, but vaccination timeliness is equally important because delays leave children vulnerable to infections. The global Immunization Agenda 2030 highlights coverage and equity as a strategic priority goal to reach high equitable immunization coverage at national levels and in all districts. Questions remain around the advancements made in implementation of the IA2030 agenda and the Addis declaration on Immunization which provide guidance to countries to improve equity.

Weak data systems: Strengthening immunization data quality and coverage estimates, and using the data for decision making towards improved immunization program performance, are critical steps toward improving coverage in the region. Immunization data systems need to be improved at national and sub-nationally to better track under-immunized populations and ensure integration with surveillance systems in novel ways to provide early warning of outbreaks.

Vaccine hesitancy: This has always had significant consequences, such as the resurgence of once eradicated vaccine-preventable diseases or failure to achieve or sustain herd immunity. The current COVID-19 pandemic and the public reaction to the COVID-19 vaccine is another example of this substantial challenge.

Whilst these challenges remain, it is important to share lessons on some of the best practices in the East Africa region to protect the gains made on routine immunization and COVID-19 vaccination. It is upon this backdrop that PATH and WACI health are organizing this webinar to shed the spotlight on the performance of immunization programs in the region.

Objective: The objective of this webinar is to assess progress made by countries in the East Africa region towards protecting the immunization gains during the COVID-19 pandemic period, share progress on domesticating regional and global guidance on immunization and share lessons on rebuilding resilient immunization systems.

Participants and structure: The meeting will be attended by advocates, experts and representatives from normative agencies, civil society partners, the private sector, governments, and government representatives. The event will be a moderated panel discussion followed by open discussion.

S3. Universal Health Coverage: Status of the Health Universal Coverage in East Africa: Challenges and Solutions to attain SDG3

Background and Rationale: In September 2015, the global development community adopted 17 sustainable development goals (SDGs) with 169 indicators. SDG 3 entails ensuring good health and well-being for all at all ages but is closely linked with all other SDGs. Universal health coverage (UHC) is framed along other targets under Goal #3. Goal #3 also addresses all major priorities in health and introduces a broader agenda for reducing health risks and determinants of good health and wellbeing. However, the current focus in most countries is on expanding healthcare services as means to improve health. More so, the need for local knowledges for health systems developments to address the health needs of the country's population while protecting the people from the financial hardships of ill health and ensuring equity in access has been emphasized as a prerequisite towards UHC. This regional symposium will bring experiences, reflections and evidence (both national and regional level) to guide decisions and strategies at various levels for advancing local knowledge (context and processes) for UHC agenda in the context of SustainableDevelopmentGoal-3 (SDG). The symposium acknowledges by sharing lessons from the EAC partner states on population health needs, increasing access, and protecting against catastrophic purchasing of health services will extend beyond the health sector to include other sectors that are vital to the social, economic and other determinants of health

Objective: The overall aim of this symposium is to share experiences, reflections, and evidence on population health needs, increasing access, and protection against catastrophic purchasing of health services which is aimed at achieving UHC for the EAC citizens.

Expected Outputs:

1. Lessons that can inform the development of subnational, national, regional and global partnerships for achieving UHC and SDGs.
2. The symposium will inform advocacy efforts and initiatives on policy and systems developments for UHC context and processes at a regional level.
3. The Symposium papers and proceedings will be compiled and disseminated locally, regional and internationally.

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